THE LANCET.

A Journal of British and Foreign Medicine, Surgery, Obstetrics, Physiology, Chemistry, Pharmacology, Public Health, and News.

TELEGRAPHIC ADDRESS—LANCET, LONDON [*ONE HUNDRED AND SIXTY-EIGHT PAGES.*] TELEPHONE NUMBER—5356 GERRARD

No. XX. OF VOL. I., 1906. No. 4316. Vol. CLXX. LONDON, SATURDAY, MAY 19, 1906. PRICE 7d.; POST FREE, 7½d. [Pp. 120+48.

This day, the Fourth Edition, price 12s. 6d. net, of

HEART DISEASES, with Special Reference to PROGNOSIS and TREATMENT. By Sir WM. BROADBENT, Bart., M.D. Lond., F.R.S., and JOHN F. H. BROADBENT, M.D. Oxon., F.R.C.P. Lond.
London: Baillière, Tindall, & Cox, 8, Henrietta-street, Covent Garden.

This day, the Second Edition, price 5s. net, of

ERRORS of ACCOMMODATION and REFRACTION of the EYE and their TREATMENT. By ERNEST CLARKE, B.S., F.R.C.S. Eng., Surgeon to the Central London Ophthalmic Hospital.
London: Baillière, Tindall, & Cox, 8, Henrietta-street, Covent Garden.

Next week, price 12s. 6d. net, the first of two vols. of a

MANUAL of ANATOMY, SYSTEMATIC and PRACTICAL, including Embryology (University Series), with original illustrations, mostly in colours. By A. M. BUCHANAN, M.A., M.D., C.M., &c., Professor of Anatomy in Anderson's College, Examiner in Anatomy for the Scotch Conjoint Board.
London: Baillière, Tindall, & Cox, 8, Henrietta-street, Covent Garden.

587 pages, with 249 Illustrations. Royal 8vo. 15s. net.

LAWSON.—DISEASES of the EYES. Sixth Edition. Revised and Rewritten by ARNOLD LAWSON, F.R.C.S., Assist. Surg., Roy. Lond. Ophth. Hosp.
London: Smith, Elder & Co., 15, Waterloo-place, S.W.

Second Edition. Pp. x. + 240. With 37 Illustrations. Price 5s. net.

AFTER-TREATMENT of OPERATIONS. By P. LOCKHART MUMMERY, F.R.C.S. Eng., Surgeon to King Edward VII. Hospital for Officers; Assistant Surgeon to St. Mark's Hospital and the North-Eastern Hospital for Children; Demonstrator of Operative Surgery, St. George's Hospital.
London: Baillière, Tindall, & Cox, 8, Henrietta-street, Covent Garden.

Just published. Third Edition. Entirely rewritten. Demy 8vo. Price 5s. net, by post 5s. 4d.

INDIGESTION: The DIAGNOSIS and TREATMENT of the FUNCTIONAL DERANGEMENTS of the STOMACH. With an Appendix on the preparation of food by cooking, with especial reference to its use in the treatment of affections of the stomach. By GEORGE HERSCHELL, M.D. Lond.
H. J. Glaisher, 57, Wigmore-street, W.

PRACTICAL PRIVATE and PERSONAL INSTRUCTION in SUBJECTIVE SIGHT TESTING free to Medical Men by Mr. F. DAVIDSON, at his rooms, 140, Great Portland-street, London, W. Communication invited.—MEDICAL OPINIONS: "It has increased both my reputation and my practice." "I wrote to Dr. —— advising him to run up to London and take a lesson or two from you." "Your instructions are splendid." "You are at liberty to mention my name." "I am simply delighted." "Once your method is grasped it lessens the time necessary over any given case of astigmatism by two thirds." "I thank you for your ready help."—Study and Practice of Retinoscopy, with a Model Eye, by Mr. Percy Dunn. Price, including Model Eye, 17 Discs showing typical conditions of the Retina, and various lenses for Retinoscopic Practice, £1 5s. "Sight Testing for the General Practitioner." by F. Davidson, price 2s. 6d.
Direct Illumination of the Eye made easy by means of simple Electrical Appliance, complete with cord and battery, 30s.
F. Davidson & Co., 140, Great Portland-street, London, W.

Price 10s. 6d. net.

CONJUNCTIVITIS. By N. BISHOP HARMAN, M.B. Cantab., F.R.C.S. Eng., Ophthalmic Surgeon, Belgrave Hospital.
London: Baillière, Tindall, & Cox, 8, Henrietta-street, Covent Garden.

DISSECTIONS: a Graphic Handbook for Students of Human Anatomy. By C. GORDON BRODIE, F.R.C.S.
Part I. THE UPPER LIMB. 17 Coloured Plates. 8s. 6d.
" II. THE LOWER LIMB. 20 Coloured Plates. 10s.
" III. HEAD, NECK, AND THORAX. 20 Coloured Plates. 15s.
Whittaker & Co., 2, White Hart-street, London, E.C.

Now ready. SECOND EDITION. Thoroughly Revised.
In One Volume, Royal 8vo, Extra Cloth Binding, pp. xxxvi.-1388. Illustrated with 936 Wood Engravings from Original Drawings, many printed in Colours. Price 31s. 6d. net; or in Half-Leather Binding, 35s. net.

TEXT-BOOK of ANATOMY. Edited by D. J. CUNNINGHAM, M.D., F.R.S., Professor of Anatomy in the University of Edinburgh.
Contributors—
Ambrose Birmingham, D. J. Cunningham, A. Francis Dixon, David Hepburn, Robert Howden, A. M. Paterson, Arthur Robinson, Harold J. Stiles, Arthur Thomson, A. H. Young.
Young J. Pentland.
Edinburgh: Teviot-place. London: 38, West Smithfield.

8vo, pp. 240. 40 Illustrations. 6s. net.

SQUINT. By CLAUD WORTH.
NEW EDITION.
"This is an excellent work. ..... Eminently practical."—THE LANCET.
"This is a book of very exceptional value and importance. ..... The fullest and most authoritative study of the subject that has hitherto been presented to the profession."—MEDICAL PRESS.
"Describes successful methods of dealing with a class of cases the treatment of which has hitherto been very unsatisfactory."—BRITISH MEDICAL JOURNAL.
London: Bale, Sons, and Danielsson, 83-89, Gt. Titchfield-st., W.

SAUNDERS' LATEST BOOK.

FOWLER'S TREATISE ON SURGERY.

See SAUNDERS' Advertisement on Page 7.

Now ready, SECOND Edition, with Illustrations, royal 8vo, 10s. 6d.

TREATMENT of LATERAL CURVATURE of the SPINE.
With Appendix giving an Analysis of 1000 Consecutive Cases treated by "Posture and Exercise" exclusively (without mechanical support).
By BERNARD ROTH, F.R.C.S.
London: H. K. Lewis, 136, Gower-street, W.C.

Illustrated by 93 figures and 68 cases. Pp. 301. 10s. net.

SURGERY of PARALYSES. By A. H. TUBBY, M.S. Lond., F.R.C.S. Eng., and ROBERT JONES, F.R.C.S.E.
"Can confidently recommend it as a practical summary of the most modern views."—EDINBURGH MEDICAL JOURNAL.
"No one interested in the treatment of paralysis can afford to leave it unread."—BIRMINGHAM MEDICAL REVIEW.
"Indicates original and successful methods of treatment."—AMERICAN JOURNAL OF ORTHOPÆDIC SURGERY.
London: Macmillan & Co., Ltd. New York: The Macmillan Co.

THE BACTERIOLOGY of PERITONITIS.
By LEONARD S. DUDGEON, M.R.C.P. Lond., and PERCY W. G. SARGENT, M.A., M.B., B.C. Cantab., F.R.C.S.
With Illustrations and Tables.
Demy 8vo. Price 7s. 6d. net.
Archibald Constable & Co., Ltd., London.

LECTURES on TROPICAL DISEASES.
By Sir PATRICK MANSON, K.C.M.G., F.R.S., M.D., F.R.C.P.
Fully Illustrated.
Demy 8vo. Price 7s. 6d. net.
Archibald Constable & Co., Ltd., London.

THE SURGERY of the DISEASES of the APPENDIX VERMIFORMIS and their COMPLICATIONS.
By WILLIAM HENRY BATTLE, F.R.C.S.,
Surgeon to St. Thomas' Hospital, formerly Hunterian Professor of Surgery at the Royal College of Surgeons of England, &c.;
and EDRED M. CORNER, M.B., B.Ch., F.R.C.S.,
Assistant Surgeon to St. Thomas' Hospital and the Great Ormond-street Hospital for Sick Children; Erasmus Wilson Lecturer at the Royal College of Surgeons, &c.
Demy 8vo. 7s. 6d. net.
Archibald Constable & Co., Ltd., London.

ANTI-TYPHOID INOCULATION.
Containing an Exposition of the Principles of the Method and a Summary of the Results achieved by its Application.
By A. E. WRIGHT, M.D. Univ. of Dublin).
Demy 8vo. Price 3s. 6d. net.
Archibald Constable & Co., Ltd., London.

M.D. BRUX. EXAM. — Fullest particulars Exam. questions, &c Pamphlet, price 2s. 7d. post free, from Dr. Henshley, Canterbury, or Mr. Bryce, Bookseller, Edinburgh.

Just Published. With numerous Illustrations.
Royal 8vo, price 25s.

THE DISEASES of the NOSE and its ACCESSORY SINUSES.
By H. LAMBERT LACK, M.D. Lond., F.R.C.S. Eng.,
Surgeon to the Throat Department of the London Hospital; Surgeon to the Hospital for Diseases of the Throat, Golden-square; Lecturer on Diseases of the Throat, London Hospital Medical College (University of London).
Longmans, Green & Co., 39, Paternoster-row, London, E.C.

THE LANCET is registered as a Newspaper. All rights reserved.

GAYMERS' CYDER.

WM. GAYMER & SON, the Oldest Firm of English Cyderists,

Beg to call the attention of Medical Men to their product, certified by THE LANCET and other high medical authorities for wholesomeness and purity. They will be pleased to send an assorted sample case (free and carriage paid) of their high-class Cyders to any member of the Medical Profession on receipt of professional card. Correspondence invited.

Head Office and Works: ATTLEBORO', NORFOLK.

London Stores: Arch 23, G.E. Ry. Bishopsgate Goods Station, E.

BY APPOINTMENT TO H.M. THE KING.

Cyllin, The Non-Toxic Bactericide.

The efficiency of Cyllin is guaranteed 10 to 30 times that of Carbolic Acid, according to the organism against which it is employed.

1/- Bottle makes 25 Gallons—efficiency guaranteed.

PREPARATIONS OF CYLLIN:—

CYLLIN (Medical)—A refined preparation for Medical and Surgical use.

CYLLIN CAPSULES (Palatinoids)—Recommended for Gastric or Intestinal Antisepsis, &c.

CYLLIN INHALANT—For use with Cyllin Inhalator in suppurative conditions of the bronchial passages, &c.

CYLLIN PASTILLES—Antiseptic Throat Lozenges: invaluable for purposes of mouth hygiene.

CYLLIN DUSTING POWDER, SOAPS, SUPPOSITORIES, GAUZE, LANO-CYLLIN, &c.

See Pamphlet entitled "STANDARD CHEMICAL DISINFECTANTS." Copies, together with working Samples, sent gratis and postage paid on applying to

JEYES' SANITARY COMPOUNDS CO., Ltd., 64, Cannon Street, London, E.C.

"The Food Par Excellence For a Tired Stomach."

Valentine's Meat-Juice

IN SURGICAL PRACTICE.

Before and after Operations, when the stomach rejects other foods, and a concentrated, easily assimilated, rapid blood-making nutrient is urgently demanded, Valentine's Meat-Juice is extensively employed by European and American Surgeons.

Prof. Dr. Albert Hoffa, *Extraordinary Professor of Surgery, University of Wurzburg, Germany.* "I can cordially recommend Valentine's Meat-Juice. It has rendered especially valuable service to patients who had operations performed on the Larynx or in the Oesophagus, and who had difficulty in swallowing. It was easy to provide such patients with the relatively small doses sufficient for their nutrition."

W. S. Tremaine, M. D., *Professor of Surgery, Niagara University, Buffalo, N. Y., U. S. A.* "Having had years of experience with Valentine's Meat-Juice, I can testify to its excellence. I know that I have saved lives with it when every other form of nourishment was rejected. It is most valuable, and I constantly use it."

Physicians are invited to send for brochures containing clinical reports.

For sale by European and American Chemists and Druggists.

VALENTINE'S MEAT-JUICE COMPANY,
RICHMOND, VIRGINIA, U. S. A.

Three Lectures
ON
THE PRESERVATION OF HEALTH AMONGST THE PERSONNEL OF THE JAPANESE NAVY AND ARMY.

Delivered at St. Thomas's Hospital, London, on May 7th 9th, and 11th, 1906,

By BARON TAKAKI, F.R.C.S. Eng., D.C.L.,
LATE DIRECTOR-GENERAL OF THE MEDICAL DEPARTMENT OF THE IMPERIAL JAPANESE NAVY.

LECTURE I.

Delivered on May 7th.

MR. TREASURER AND GENTLEMEN,—I am here to-day owing to an invitation from the staff of St. Thomas's Hospital and Medical College. I feel that it is a great honour to me personally and also a great compliment paid to the medical profession of the Japanese empire, and I thank you all on their behalf for your cordial and friendly feeling towards us.

I think some of you are already aware that I was invited by Cartwright's Lecture Committee of the Alumni Association of the College of Physicians and Surgeons of Columbia University of New York to deliver the Cartwright lecture and I chose the Sanitation of the Japanese Navy and Army as the subject of my lecture. At that time I had no idea and never thought that I should be asked to speak before such a large and distinguished assembly as is present here to-day. But when I was in America I was requested by the staffs of this hospital and St. Thomas's Medical College to tell them some of my experiences and I could not resist accepting such an honour from this hospital, with which I may claim very close relation, in so much as I am one of the graduates of this ancient institution and have worked under this roof as house officer. The subject of my address here is the same as in the Cartwright lecture, the reason being that on this subject I may claim to having had some practical experience and knowledge on account of my long service in the navy.

Here I have Table I. showing various details from 1878–1888 and I am now going to explain all the details. From 1888 to the present day there have been no important changes. In looking over this table we find the average number of general diseases during 1878, 1879, and 1880 to be just over 4327 per 1000—that is, one sailor suffered 4·32 times every year. The death-rate averaged 16·34 per 1000 and the invaliding-rate 8·75. The number of beri-beri (kak'ke) patients was 349·33 per 1000. Those who died from it averaged 7·96 and those invalided 2·45. Therefore, the number of sailors lost through death and made invalids owing to general diseases was 24·09 per 1000 and those lost through death and invaliding from beri-beri 10·43 per 1000. If we now subtract 10·43 from 24·09 only 13·66 remain. Therefore it was clear that if beri-beri could be wholly exterminated the number of losses from illness would decrease to 13·66.

From 1881 to 1883 the number of cases of illness slightly decreased. In 1884 the general aspect of the health of the navy suddenly changed for the better and the number of general diseases as well as cases of beri-beri markedly decreased. The number of general diseases was 1865·02 per 1000—that is, one person became ill 1·8 times a year. Deaths per 1000 decreased to 7·98 and invalids to 7·80. The number of beri-beri cases averaged 127·35 per 1000. Deaths from it decreased to 1·42. Therefore, the average of deaths and invalids from general diseases decreased to 15·78 and that of beri-beri to 1·60 per 1000. Similarly in 1885 the number of general diseases decreased to 992·48 per 1000 and deaths to 7·08 per 1000. Beri-beri decreased to 5·93 per 1000 without death. So the number of deaths and invalids decreased to 12·14. In 1886 general diseases per 1000 averaged 577·46, deaths 7·43, and beri-beri 0·35, without death or invaliding. In 1887 general diseases per 1000 were 434·22, deaths 6·04, and invalids 6·15. In 1888 general diseases per 1000 averaged 400·59, deaths 7·08, and invalids 9·15. In short, the number of losses through deaths and invalids per 1000 in 1884 was 15·78, in 1885 12·14, in 1886 12·57, in 1887 12·19, and in 1888 16·33. If we now compare these five years with three years from 1878 to 1880 we find a marked decrease of general diseases and disappearance of beri-beri with corresponding decrease in the loss of sailors year by year. These good results must depend upon certain causes and in order to explain them I will first of all try to describe various important facts since the establishment of the Naval Medical Bureau in 1872.

THE ESTABLISHMENT OF THE NAVAL MEDICAL BUREAU.

The Naval Medical Bureau of the Japanese Empire was established for the first time in 1872. At that time there was no one who had a thorough idea of naval hygiene because up to that time there was no special sanitary work carried out by medical officers in our navy, and other officers thought that the necessity of medical men in the Navy was simply for treating diseases and wounded. Even the medical officers thought in the same way. They never had the slightest idea of doing anything in preventing disease or in general hygiene. Accordingly, the only medical record left from 1872 to 1877 was limited to the description of results of treatment, name of diseases, and names of patients taken into hospitals. Between 1878 and 1883 the record gradually began to include facts about hospital and non-hospital patients and some hygienic affairs. Finally, from 1884 the records became more and more complete, giving various tables illustrating hygienic conditions by the issue of instructions relating to the duties of the medical officers.

TABLE I.—SHOWING THE GENERAL HEALTH OF THE NAVY.

Year.	Strength.	All diseases and injuries.							Cases of kak'ke or beri-beri.					
		Cases of disease or injury.	Ratio of cases per 1000 of strength.	Average ratio of cases per person per annum.	Died.	Ratio of deaths per 1000 of strength.	Invalided.	Ratio of invalided per 1000 of strength	Cases of kak'ke.	Ratio of cases of kak'ke per 1000 of strength.	Died.	Ratio of deaths per 1000 of strength.	Invalided.	Ratio of invalided per 1000 of strength.
1878	4528	17,788	3925·45	3·93	56	12·37	44	9·72	1485	327·96	32	7·07	19	4·20
1879	5031	22,426	4413·70	4·41	119	23·42	39	7·68	1978	389·29	57	11·20	8	1·57
1880	4956	22,819	4604·32	4·60	63	12·71	43	8·68	1725	348·06	27	5·45	9	1·82
1881	4641	15,766	3397·12	3·40	81	17·45	29	6·25	1163	250·59	30	6·46	16	3·45
1882	4769	12,074	2531·77	2·53	103	21·60	30	6·29	1929	404·49	51	10·69	17	3·56
1883	5346	16,380	3063·97	2·90	85	15·90	28	5·24	1236	251·20	49	9·17	4	0·75
1884	5638	10,515	1865·02	1·81	45	7·98	44	7·80	718	127·35	8	1·42	1	0·18
1885	6918	6,866	992·48	0·91	49	7·08	33	4·77	41	5·93	—	—	1	0·14
1886	8475	4,874	577·46	0·52	63	7·43	52	6·14	3	0·35	—	—	—	—
1887	9016	3,954	434·22	0·40	55	6·04	56	6·15	—	—	—	—	—	—
1888	9184	3,679	400·59	0·40	65	7·08	48	9·15	—	—	—	—	—	—

THE EDUCATION OF NAVAL MEDICAL OFFICERS.

At the time of the establishment of the Medical Bureau in 1872 Dr. Wheeler, attached to the British Legation, was invited by the Naval Hospital to give lectures, both theoretical and practical. In 1872 Mr. William Anderson was specially invited from England to teach junior medical officers and students. In 1877 16 men were qualified and passed out of the school. These were the first graduates. Chief among them were the present Surgeon-Generals Yamamoto, Totsuka, Suzuki, and Kimura. The first three were educated, like myself, in this hospital for the higher course of study. (Surgeon-General Yamamoto served during the late war with Russia as the chief surgeon of Yokosuka Naval Station, Surgeon-General Totsuka as the chief surgeon of Sasebo Naval Station, where the majority of the wounded from the naval fights were treated, and Surgeon-General Suzuki as the chief medical officer of Togo's fleets.) However, later, during my absence in England, the levying of medical students was stopped and Mr. Anderson's duties came to an end. It was then found that as the newly adopted medical officers could not understand a foreign language they could neither learn anything about naval and military hygiene in foreign lands nor could they follow the progress of medical science in general. Besides, they could not talk and associate with foreign medical officers, and on occasions when they went to foreign ports or lands they could not find out the sanitary conditions, especially those relative to the endemic and epidemic diseases of those ports.

Again this ignorance of foreign languages led to inconveniences in buying articles of food, drinking water, &c., and thus there was always fear of the invasion of infectious diseases through this channel. Moreover, the foreign language used by the Imperial University in teaching medicine was German, and I thought that the language most useful and important to our naval medical officers would be English. Finally, unless those who serve in the navy were able to keep up the general spirit characteristic of the sailors they could not work hand in hand with the fighting or deck officers and they would find many inconveniences in conducting sanitary affairs. Accordingly I insisted upon re-establishing the Naval Medical School and enlisted some students in 1881. Besides the full medical course the English language was taught as an extra subject and by 1894 80 students in all passed out as officers. But after that year (in 1893 I retired from active service, was placed in the reserve list, and became a member of the House of Peers) fresh students were not again enlisted and new medical officers were obtained from among those who studied in the Imperial University and specially licensed medical schools. Medical officers were also sent abroad to pursue further study in medical science. In 1872 Dr. S. Ono and Dr. K. Yoshida, in 1874 Dr. T. Ishigami, in 1875 Dr. K. Takaki, and in 1878 Dr. A. Saneyoshi were sent to England. Since then a number of medical officers was sent to Europe, chiefly to England and Germany. I entered the navy in 1872 and began to treat the sick and wounded. What at once attracted my notice was the large number of beri-beri patients and the numerous deaths resulting from it. And as this disease truly played havoc with the health of our navy and killed many, so as greatly to reduce our fighting strength, I turned my full effort towards finding its cause and treatment. By doing so, I meant to prevent the outbreak of this disease and to provide against unforeseen danger through ill-health in time of crisis in our Empire. In pursuing this purpose I met with many difficulties and passed through years of hard work.

The first time I heard of the fearful nature of beri-beri was 44 years ago. At that time guards were despatched by several Daimios to Kyoto to act as protectors of the Imperial Palace and my father being one of them stayed there for over a year. On his return he told me of the disease called beri-beri which killed many of these men. They attributed the cause to food and called a provision box the "beri-beri box." Later, in 1868, that is, in the year of the Meiji Revolution, I served for eight months in the army of Prince Shimadzu but did not see any beri-beri. As I said before, I entered the navy in 1872 and began to treat beri-beri patients for the first time. Up to May, 1875, I had seen several hundreds of beri-beri cases at the Naval Hospital. In the summer several acute cases appeared daily. Often five or six cases had to be treated at the same time and attending officers had to work very hard both day and night. At that time the beri-beri patients constituted three fourths of the whole number of patients. Various forms of treatment were adopted: purgatives and digitalis for œdema, palpitation, &c.; strychnine, iron, &c., for numbness and paralysis; tincture of aconite for hyper-sensibility of muscles; and purgatives and venesection for acute cases. These forms of treatment were general and there was no definite opinion as regards the food.

Conditions being such, it became my fixed desire to discover the cause and treatment of beri-beri. But I thought that with my insufficient knowledge of medical science I could not possibly discover them, and from then on the desire to go abroad in order to fit me for attaining my object never left my thoughts even for a moment. At last, in June, 1875, the desire was fulfilled and I started for England. I reached London in July and entered St. Thomas's Hospital Medical School in October. After staying there for over five years I returned to Japan in November, 1880, and was made the director of the Tokyo Naval Hospital in December. Thus, I got an opportunity to treat beri-beri patients again. The general conditions on my return were exactly the same as before I went to England and with subsequent increase of sailors more beri-beri cases appeared. At times, when the disease was in full force, we found the hospital too small and often had to use neighbouring temples. Moreover, acute cases were many and medical officers had a very busy and hard time. Such conditions used to strike my heart cold whenever I came to think of the future of our Empire, because, if such a state of health went on without discovering the cause and treatment of beri-beri our navy would be of no use in time of need.

As a first step towards the cause and cure of this disease I began to note the localities and seasons and to examine sailors in ships, barracks, &c., and I obtained the following facts:—1. Beri-beri occurred mostly from the end of spring to summer, but it was not limited to the warm season, sometimes occurring during the severe cold of winter. 2. The occurrence of the disease varied in different ships, barracks, &c. 3. Even in the same ship it appeared in some stations, not in others, and was never certain. 4. It occurred from time to time without regard to the state of quarters or clothing. 5. I found out that although clothing, food, living, &c., were not quite the same in all stations, yet they were almost similar.

With these facts I could not easily discover the cause and I went on with further investigations with the following results:—1. As regards the class of patients in general, I found that sailors, soldiers, policemen, students, shop-boys, and so on, were those who suffered most. The upper class rarely became affected. 2. The people living in the same place suffered unequally—that is, some suffered and others did not. 3. Although it occurred mostly in large cities, like Tokyo, Osaka, and Kyoto, yet it sometimes appeared in smaller towns as well. Thus with such results and without discovering the cause of beri-beri the time quickly passed to the year 1882. In February of the year 1882 I was appointed the Vice-Director of the Naval Medical Bureau.

About that time it was found to be necessary to provide an extra medical officer besides the usual number on board the training ships going for long cruises on account of the abundance of beri-beri cases among the men during the voyage. In 1882 there was a critical state of affairs with Korea and three warships were sent to Ninsen (Chemulpo) and Saibutsu Bay. They stayed there only 40 days but owing to shortness of hands caused by the prevalence of beri-beri among sailors the officers felt quite unfit for battle and it was a very anxious time for those in positions of responsibility because those three ships would have been of no fighting value in the critical moment. For example, in one of the ships 195 out of 330 were down with beri-beri. As a consequence I handed to the chief of the Naval Medical Bureau on June 24th, 1882, a memorandum describing the facts. Following this, in August, 1882, H.I.M.S. *Fuso*, in spite of anchoring off Shinagawa Bay, had to send half of its crew ashore in turns for the treatment of beri beri. Continuing still further, I examined the reports of the Tokyo and Yokohama naval hospitals for 1881 and found out that three-fourths of the patients had suffered from beri-beri.

In 1883 I received permission from the Minister of the Navy to examine the hygienic conditions of ships, barracks, schools, &c., belonging to the navy. I found that although working hours, clothing, dwelling-houses, &c., were similar everywhere, yet in food there was a great deal of difference. So I now asked the head of each sectional department to send me in the reports describing the details of food taken

three times daily for a week. From this I discovered the following facts: 1. Nitrogenous substances contained in the food were not sufficient to make up for the amount of nitrogenous substances discharged from the body. 2. On the contrary, the food contained too much carbohydrates. If we now look into the table recognised by scientists showing the comparative amounts of nitrogen and carbon discharged daily by a fair-sized adult we shall see that carbon equals 310 grammes and nitrogen equals 20 grammes—i.e., nitrogen is to carbon as 1 is to 15·5. 3. The food taken by our sailor showed nitrogen 1 to carbon 17·32. 4. The greater the difference in these proportions the more beri-beri occurred, and the lesser the difference the less.

After obtaining these important facts I came to think that:—1. Beri-beri is caused by the disproportion of nitrogenous and non-nitrogenous elements (nitrogen and carbon) in food—that is, the amount of the nitrogenous was insufficient and that of the non-nitrogenous excessive. 2. The symptoms of beri-beri patients are really due to these causes and the good results obtained by purgatives are due to their powers in getting rid of the abundant carbohydrates. 3. The pathological changes occurring in nerves, muscles, &c., are the result of inability of the tissues to repair the waste owing to the insufficiency of nitrogenous substances in the food and the above changes are further aggravated by the presence of the large quantity of carbohydrates in the food.

In October, 1882, I submitted a proposal to the Minister of the Navy, the late Count Kawamura, the chief object of which was to change the old dietary system. When this proposal was put forward before a meeting there was a good deal of opposition. They said that the change was too radical and instanced the great disturbances caused by the change of diet in the Italian navy some years before. They also called attention to the new system of fixing the amount of food by quality and quantity instead of by monetary value as in the old. In spite of the difficulties caused by this opposition my opinion finally prevailed and the new system was adopted. But as we required a few months longer in order to examine and to fix the quality and quantity of food to be given, and as even some naval medical officers were holding the opposite view in heart, I took the opportunity of trying the new system on a certain number of beri-beri patients in the Tokyo Naval Hospital, comparing the result with that of the old system. The following is the table showing the increase in weight in the old and new diet on ten beri-beri patients, five on each diet during four weeks:—

	Old Diet.		*New Diet.*	
1 momme = 58 grains Troy, or about 1 drachm.				
Initials of Patients.	P—— K——.*		U—— K——.*	
	Momme.		Momme.	
Before experiment	13,000 (101 lb.)		12,700 (98½ lb.)	
1st week	13,020 (increase	20=2½ oz.)	12,800 (increase	100=¾ lb.)
2nd week	13,040 (,,	20=2½ oz.)	12,800	
3rd week	13,380 (,,	340=2½ lb.)	13,160 (increase	360=3 lb.)
4th week	13,440 (,,	60=7 oz.)	13,250 (,,	100=¾ lb.)
	Total increase 440=3½ lb.		Total increase 560=4½ lb.	
	B—— I——.*		T—— K——.*	
	Momme.		Momme.	
Before experiment	11,680		14,380	
1st week	11,500 (decrease	180)	14,300 (decrease	80)
2nd week	11,980 (increase	480)	14,580 (increase	280)
3rd week	12,140 (,,	160)	14,660 (,,	80)
4th week	12,240 (,,	100)	14,660	
	Total increase 560=4½ lb.		Total increase 280=2 lb.	
	Y—— K——.*		Y—— C——.*	
	Momme.		Momme.	
Before experiment	11,100		13,320	
1st week	11,100		13,220 (decrease	100)
2nd week	10,860 (decrease	240)	13,280 (increase	60)
3rd week	10,920 (increase	60)	13,360 (,,	80)
4th week	10,960 (,,	40)	13,640 (,,	280)
	Total decrease 140=1 lb.		Total increase 320=2¼ lb.	
	Y—— K——.†		G—— M——.†	
	Momme.		Momme.	
Before experiment	14,960		14,360	
1st week	15,280 (increase	320)	14,320 (decrease	40)
2nd week	15,200 (decrease	80)	14,220 (,,	100)
3rd week	15,300 (increase	100)	14,260 (increase	40)
4th week	15,300		14,300 (,,	40)
	Total increase 340=2½ lb.		Total decrease 60=¼ lb.	
	T—— K——.†		T—— W——.†	
	Momme.		Momme.	
Before experiment	13,500		12,740	
1st week	13,340 (decrease	160)	12,660 (decrease	80)
2nd week	13,230 (,,	110)	12,500 (,,	160)
3rd week	13,180 (,,	50)	12,500	
4th week	13,150 (,,	30)	12,440 (,,	60)
	Total decrease 350=2½ lb.		Total decrease 300=2½ lb.	

New Diet.

Increased weight of 5 experimental patients ... 1160 momme = 9 lb.
Decreased ,, 5 ,, ,, ... 360 ,, = 3 lb.
The difference between the two is the increase of 800 momme = 6 lb. —that is, each person increased 160 momme = 1·2 lb.

Old Diet.

Increased weight of 5 experimental patients ... 1340 momme = 10 38 lb.
Decreased ,, 5 ,, ,, ... 490 ,, = 3·8 lb.
The difference is the increase of 850 momme = 6½ lb.—that is, each patient increased 170 momme = 1 3 lb.

In this table those marked (*) show chronic kak'ke; those marked (†) show subacute kak'ke.

The new system diet for the first two weeks is shown in Table II.; that for the second two weeks in Table III. Table IV. shows the old diet. Of the five patients who received the new diet all were discharged with complete cure. Of the five patients who remained on the old diet four were cured and discharged from the hospital and one changed into pulmonary disease.

TABLE II.—*Showing the Daily Ration supplied to Sailors during Stay in Port.*

Breakfast.

—	Bread.	Biscuit.	Butter.	Cream.	Sugar.	Tea.
	Momme.	Momme.	Momme.	Momme	Momme.	Momme.
Sunday ...	60 (7½ oz.)	—	3 (⅜ oz.)	2 (¼ oz.)	4 (½ oz.)	1 (⅛ oz.)
Monday ...	—	50 (6¼ oz.)	3	2	4	1
Tuesday ...	60	—	3	2	4	1
Wednesday	—	50	3	2	4	1
Thursday ...	60	—	3	2	4	1
Friday	—	50	3	2	4	1
Saturday ...	60	—	3	2	4	1
Sunday ...	—	50	3	2	4	1
Monday ...	60	—	3	2	4	1
Tuesday ...	—	50	3	2	4	1
Wednesday	60	—	3	2	4	1
Thursday ...	—	50	3	2	4	1
Friday	60	—	3	2	4	1
Saturday ...	—	50	3	2	4	1

1 momme = 58 grains Troy.

Luncheon.

—	Rice.	Fresh beef with bone.	Tinned beef.	Vegetables.
	Momme.	Momme.	Momme.	Momme.
Sunday	50 (6¼ oz.)	60 (7½ oz.)	—	25 (3¼ oz.)
Monday	50	—	60 (7½ oz.)	25
Tuesday	50	60	—	25
Wednesday	50	—	60	25
Thursday	50	60	—	25
Friday	50	—	60	25
Saturday	50	60	—	25
Sunday	50	—	60	25
Monday	50	60	—	25
Tuesday	50	—	60	25
Wednesday	50	60	—	25
Thursday	50	—	60	25
Friday	50	60	—	25
Saturday	50	—	60	25

Dinner.

—	Rice.	Fresh beef with bone.	Fish.	Bean (Pisum).	Vegetable.	Japanese wine.
	Momme.	Momme.	Momme.	Momme.	Momme.	Go.
Sunday ...	50 (6¼ oz.)	40 (5 oz.)	—	—	25 (3¼ oz.)	2 (10 oz.)
Monday ...	50	—	40 (5 oz.)	10 (1¼ oz.)	25	2
Tuesday ...	50	40	—	—	25	2
Wednesday	50	—	40	10	25	2
Thursday ...	50	40	—	—	25	2
Friday ...	50	—	40	10	25	2
Saturday ...	50	40	—	—	25	2
Sunday ...	50	—	40	10	25	2
Monday ...	50	40	—	—	25	2
Tuesday ...	50	—	40	10	25	2
Wednesday	50	40	—	—	25	2
Thursday ...	50	—	40	10	25	2
Friday ...	50	40	—	—	25	2
Saturday ...	50	—	40	10	25	2

1 *go* = 10·981 cubic inches.

TABLE III.—*Showing the Daily Ration supplied to Sailors at Sea.*

Breakfast.

—	Bread.	Biscuit.	Butter.	Cream.	Sugar.	Tea.
	Momme.	Momme.	Momme.	Momme.	Momme.	Momme.
Sunday ...	60 (7½ oz.)	—	3 (⅛ oz.)	2 (1 oz.)	4 (⅛ oz.)	1 (¼ oz.)
Monday ...	—	50 (6¼ oz.)	3	2	4	1
Tuesday ...	60	—	3	2	4	1
Wednesday	—	50	3	2	4	1
Thursday ...	60	—	3	2	4	1
Friday	—	50	3	2	4	1
Saturday ...	60	—	3	2	4	1
Sunday ...	—	50	3	2	4	1
Monday ...	60	—	3	2	4	1
Tuesday ...	—	50	3	2	4	1
Wednesday	60	—	3	2	4	1
Thursday ...	—	50	3	2	4	1
Friday	60	—	3	2	4	1
Saturday ...	—	50	3	2	4	1

Luncheon.

—	Rice (momme.)	Preserved Beef (momme).	Preserved pork (momme).	Corned beef (momme).	Vegetable (momme).	(Pisum) Bean (momme).	Indian corn (momme)
Sunday	50 (6¼ oz.)	40 (5 oz.)	—	—	10 (1¼ oz.)	—	—
Monday	50	—	40 (5 oz.)	—	—	25 (3¼ oz.)	—
Tuesday	50	—	—	40	—	—	30 (3¾ oz.)
Wednesday	50	—	40	—	—	25	—
Thursday	50	40	—	—	10	—	—
Friday	50	—	40	—	—	25	—
Saturday	50	—	—	40	—	—	30
Sunday	50	—	40	—	—	25	—
Monday	50	40	—	—	—	—	—
Tuesday	50	—	40	—	—	25	—
Wednesday	50	—	—	40	—	—	30
Thursday	50	—	40	—	—	25	—
Friday	50	40	—	—	—	—	—
Saturday	50	—	40	—	—	25	—

Dinner.

—	Rice (momme).	Powdered flour (momme).	Potato (momme).	Vegetable (momme).	Canned beef (momme).	Canned beef (momme).	Canned pork (momme).	Canned fish (momme).	Biscuit (momme).	Japanese wine (sake).
Sunday	—	50	—	10‡	40§	—	—	—	—	2 go¶
Monday	50*	—	—	10	—	—	40	—	—	2 ,,
Tuesday	30†	—	30	—	—	20‖	—	20	20	—
Wednesday	50	—	—	10	—	—	40	—	—	2 ,,
Thursday	—	50	—	10	40	—	—	—	—	2 ,,
Friday	50	—	—	10	—	—	40	—	—	2 ,,
Saturday	30	—	30	—	—	20	—	20	20	—
Sunday	50	—	—	10	—	—	40	—	—	2 ,,
Monday	—	50	—	10	40	—	—	—	—	2 ,,
Tuesday	50	—	—	10	—	—	40	—	—	2 ,,
Wednesday	30	—	30	—	—	20	—	20	20	—
Thursday	50	—	—	10	—	—	40	—	—	2 ,,
Friday	—	50	—	10	40	—	—	—	—	2 ,,
Saturday	50	—	—	10	—	—	40	—	—	2 ,,

* = 6¼ oz. † = 3¾ oz. ‡ = 1¼ oz. § = 5 oz. ‖ = 2½ oz. ¶ = 10 oz.

TABLE IV.—*Showing the Old System of Diet for Hospital Patient.*

	Breakfast.	*Luncheon.*	*Dinner.*
First class	Chief dish. Vegetables, two kinds, eggs, or peas, or beans, or sea-weeds, or eel (fish). Pickle. Plums (2). Boiled rice (rice gruel sometimes substituted).	Dish. Boiled fish or fried fish: 25 momme (3¼ oz.). Small dish (cooked white bean). Boiled rice.	Dish. Chicken or beef: 25 momme (3¼ oz.). Vegetables. Small dish (cooked white bean). Boiled rice.
Second class	Bread (¼ pound). Half-boiled eggs (2). Sugar: 4 momme (½ oz.). Salt.	Bread (vermicelli, &c.).	Dish. Chicken or beef: 15 momme (1¾ oz.). Vegetables. Small dish. Plums (2). Rice gruel (100 mommes (12½ oz.).
Third class	Soup. Vegetables (2 kinds). Small dish. Pickled plums (2). Boiled rice.	Dish. Vegetable (1 to 3 kinds). Small dish (potatoes, Indian corn). Boiled rice.	Dish. Beef or fish or fried eggs. Vegetables. Small dish. Boiled white bean. Boiled rice.

As the result of these experiments it was found necessary to spend 36 sen 1 rin (about 8¾*d.*) daily instead of 18 sen (about 4¼*d.*) under the old system—that is, more than double. In December of the same year an order was issued to make monthly statistics of the body-weight of each person in the navy in order to ascertain the necessary amount of food for officers and men. By this means we got the following comparative scale of body-weight for five years from 1884 to 1888.

In looking over Table V. you will find that the body weight is highest during the months of February, March, and April, and lowest in August and September. Therefore after 1889 the weights were taken only in March and September every year.

During ten years from 1884 to 1893 there was more or less difference yearly, but, taken as a whole, the weight had increased, that is, nearly eight pounds per person. From 1894 to 1903, for ten years, there was not much change in weight, and I think that shows the sufficiency of food supplied. During the former ten years the number of general diseases decreased in accordance with the yearly increase of weight. The last ten years showed not much change in weight and number of diseases. On Sept. 26th, 1883, I for the first time spoke on the cause of beri-beri before the meeting of the Japan Society of Hygiene and expressed my view as to the cause of the disease. On Oct. 5th, 1883, I was promoted to be Director of the Medical Bureau. Soon afterwards I asked the Minister of the Navy to have a special committee of investigation on the cause of the occurrence of the almost unprecedented number of cases of beri-beri on board the training ship *Riujo*, which left Shinagawa

on Dec. 19th, 1882, and returned to Shinagawa on Oct. 15th, 1883, after a voyage of 271 days to New Zealand, South America, and Hawaii. My proposal was adopted and a special committee consisting of the following members was formed: Rear Admiral Maki (Chairman), Surgeon-General Takaki, Captain Isobe, Commander Kunitomo, Fleet-Surgeon Kagami, Fleet-Surgeon Toyozumi, Paymaster Ijichi, Paymaster Kurihara, Secretary Iwamura, Lieutenant Serada, and Clerks Matsumura, Sakamoto, and Mishina.

The first meeting of the committee was held on Nov. 12th, 1883. The chairman, Admiral Maki, explained the object of this committee and I was appointed the chief of the investigation board. After this the meeting was held five times a week till April 11th, 1884, and altogether the committee met 79 times. During that time 76 records were made, comprising 10,862 questions and 10,400 answers. As a result I, with the assistance of Staff Surgeon Toyozumi, compiled ten reports concerning (1) patients, (2) clothing, (3) bedding,

TABLE V.—*Average Monthly Body-weight of each Person from 1884 to 1888.*

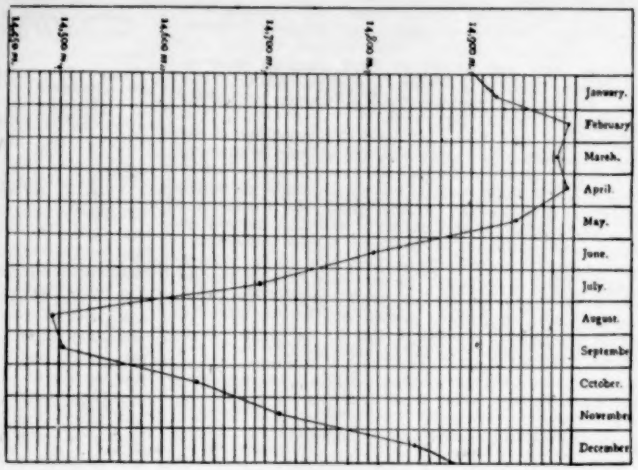
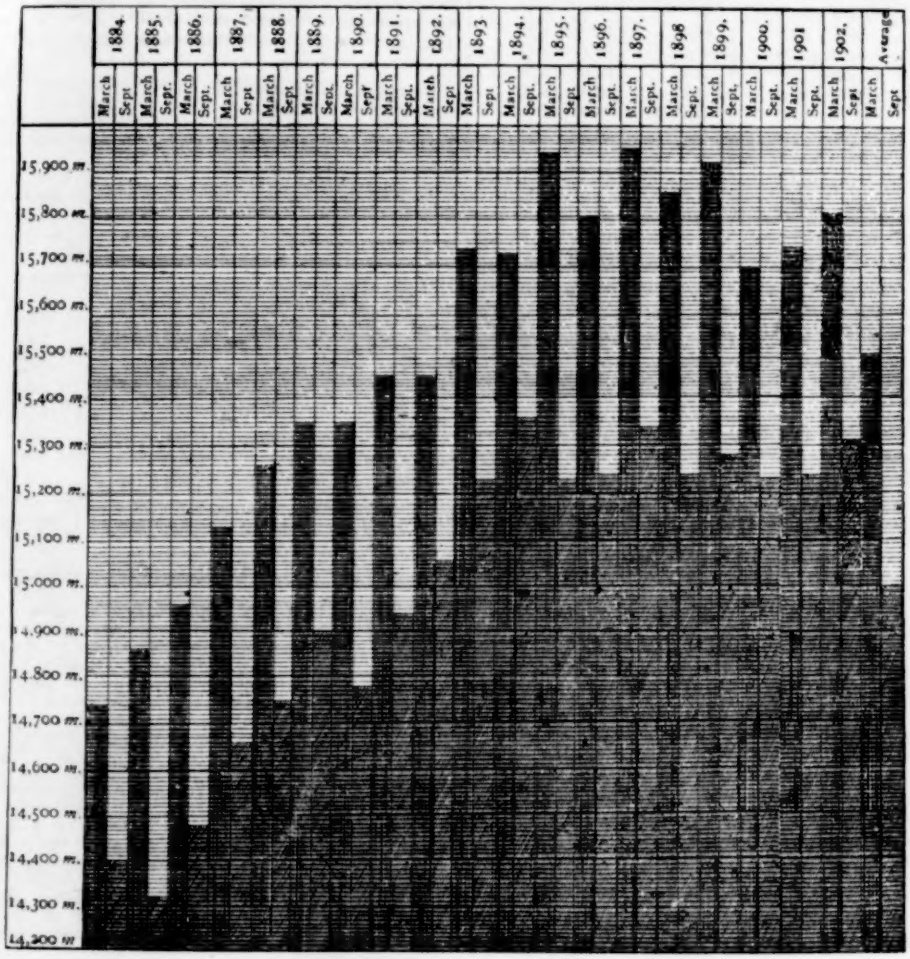


TABLE VI.—COMPARATIVE SCALE OF BODY-WEIGHT IN MARCH AND SEPTEMBER DURING 19 YEARS.



(4) food, (5) drink, (6) housing, (7) labour, (8) rest, (9) voyage, (10) anchorage, (11) weather and climate, and (12) conclusion. Besides, we made up six tables on diseases, 32 tables on food, one each on drink, climate, weather, and temperature, and also tables on food supplied daily to petty officers, sailors, students, gun-room officers, and officers. Finally, the committee met to discuss the results of investigations on Feb. 12th, 1885.

In November, 1883, I was informed of the sailing of the training-ship *Tsukuba* in a short time and at once arranged to utilise this opportunity of testing the new system of diet by making her go the same route as that of the *Riujo*. So before the sailing of the *Tsukuba* on Nov. 24th, 1883, I demanded the immediate practical application of the new diet and in consequence the Minister of the Navy issued the order to change the diet throughout the navy on Nov. 29th. Also on Nov. 26th, 1883, I proposed the necessity of the Medical Bureau having the reports on food supplied in ships, barracks, schools, &c., every month, and in the following December the Minister ordered this to be done. These reports have continued up to the present day.

TABLE VII.—*Showing the Average Daily Amount of Food for Each Person during 19 Years from 1884 to 1902.*

Year.	Amount of food for each person per day.	Year.	Amount of food for each person per day.
	Momme. Ounces.		Momme. Ounces.
1884	606·63 = 75·83	1894	416·08 = 52·01
1885	625·57 = 78·19	1896	406·70 = 50·83
1886	644·62 = 80·51	1893	384·90 = 48·11
1887	563·58 = 70·44	1897	391·29 = 48·91
1888	551·13 = 68·89	1898	406·75 = 50·84
1889	598·06 = 74·50	1899	408·01 = 51·00
1890	443·01 = 55·37	1900	415·45 = 51·93
1891	407·02 = 50·87	1901	460·60 = 57·57
1892	399·56 = 49·94	1902	438·55 = 54·82
1893	386·41 = 48·30		

The decrease of the amount of food since the year 1890 is due to the alteration of the Food Regulations in April of that year and also to the fact that, according to the revised regulations, when members of a table company exceed five in number they are allowed to receive per every five members (this number was altered to ten in 1898 and resulted in a little increase in the amount of food since that year) one man's allotment in money, with which they can buy whatever food they like, and such food is excluded from the Table. Some increase of the amount of food from 1900 is also due to the alteration of the Food Regulations from May of the same year.

TABLE VIII.—*Showing the Amount of each Nutritive Element in the Average Daily Amount of Food.*

Month.	Proteids.		Fats.		Carbo-hydrates.		Total.		Ratio of carbon to 1 of nitrogen.
	Momme.	Ounces.	Momme.	Ounces.	Momme.	Ounces.	Momme.	Ounces.	
January ...	36·93	= 4·86	8·45	= 1·05	160·40	= 20·05	207·78	= 25·97	16
February	38·21	= 4·77	8·52	= 1·06	160·19	= 20·02	206·92	= 25·85	16
March ...	38·00	= 4·75	8·34	= 1·04	159·88	= 19·98	206·22	= 25·77	16
April ...	39·08	= 4·88	8·89	= 1·11	161·72	= 20·21	209·69	= 26·20	16
May	37·91	= 4·74	8·38	= 1·04	170·89	= 21·23	217·18	= 27·01	17
June... ...	39·19	= 4·89	8·56	= 1·07	163·95	= 23·49	211·70	= 26·35	16
July... ...	38·79	= 4·85	8·67	= 1·08	160·74	= 20·09	208·20	= 25·92	16
August ...	37·85	= 4·73	8·58	= 1·07	157·72	= 19·91	204·15	= 25·51	16
September	39·39	= 4·92	9·11	= 1·14	163·87	= 20·48	212·37	= 26·54	16
October ...	38·41	= 4·80	8·68	= 1·08	160·83	= 20·10	207·92	= 25·98	16
November	38·65	= 4·83	8·39	= 1·05	162·74	= 20·34	209·78	= 26·22	16
December	38·85	= 4·85	8·54	= 1·07	162·96	= 20·37	210·35	= 26·29	16
Average ...	38·61	= 4·82	8·59	= 1·07	162·16	= 20·27	209·36	= 26·16	16

TABLE IX.—*Amount of Each Nutritive Element in the Average Daily Amount of Food for the Period of 19 Years, from 1884 to 1902.*

Year.	Proteids.		Fats.		Carbo-hydrates.		Total.	Ratio of carbon to 1 of nitrogen.
	Momme.	Ounces.	Momme.	Ounces.	Momme.	Ounces.	Momme.	
1884	52·17	= 6·52	11·67	= 1·43	206·16	= 25·77	270·00	16
1885	52·43	= 6·80	12·13	= 1·50	211·95	= 26·49	276·51	17
1886	56·73	= 7·09	12·86	= 1·60	204·66	= 25·58	274·25	15
1887	49·70	= 6·21	12·79	= 1·60	185·19	= 23·15	247·68	16
1888	48·57	= 6·07	11·78	= 1·47	177·38	= 22·17	237·73	15
1889	51·46	= 6·45	11·99	= 1·49	191·48	= 23·93	254·93	16
1890	42·44	= 5·30	7·75	= 0·94	147·44	= 18·43	197·63	15
1891	37·42	= 4·67	6·66	= 0·83	141·33	= 17·66	185·41	16
1892	33·74	= 4·84	7·33	= 0·91	144·79	= 18·10	190·86	15
1893	39·37	= 4·92	7·43	= 0·93	146·52	= 18·31	193·32	15
1894	42·23	= 5·28	8·04	= 1·06	160·79	= 20·10	211·06	15
1895	41·78	= 5·22	8·08	= 1·01	154·07	= 19·26	203·93	14
1896	39·53	= 4·94	7·64	= 0·96	145·52	= 18·19	192·69	14
1897	38·93	= 4·86	7·39	= 0·92	144·18	= 18·02	190·50	14
1898	45·37	= 5·67	8·05	= 1·00	143·40	= 17·92	196·82	17
1899	47·49	= 5·93	9·33	= 1·16	159·94	= 19·99	216·75	15
1900	48·75	= 6·09	9·79	= 1·21	158·24	= 19·78	216·78	15
1901	52·66	= 6·58	9·03	= 1·13	156·90	= 19·61	218·58	14
1902	38·61	= 4·82	8·59	= 1·07	162·16	= 20·26	209·36	16

The reason of decrease in the amount of nutritive elements since the year 1890 and that of some increase in it since the year 1898 is due to that stated in the note appended to Table VII. The present scale of diet supplied to the sailors is as follows:—

TABLE X.—*Average Daily Amount of Food for Each Person.*

Article.	Amount.	Article.	Amount.
	Momme. Ounces.		Momme. Ounces.
Biscuit	8·99 = 1·12	Vegetables ...	112·12 = 14·01
Bread	52·97 = 6·62	Tea...	0·41 = 0·05
Preserved meat	6·45 = 0·80	Baked barley	0·76 = 0·09
		Sugar	9·91 = 1·24
Preserved fish	6·50 = 0·81	Shoyu (a kind of soy) ...	19·89 = 2·48
Meat (fresh)...	53·98 = 6·74		
Fish (fresh) ...	19·60 = 2·42	Vinegar ...	1·52 = 0·19
Rice	100·49 = 12·56	Oil	0·54 = 0·07
Cracked wheat... ...	34·26 = 4·28	Salt	1·83 = 0·23
		Fat...	1·30 = 0·16
Beans	3·44 = 0·43		
Wheat flour...	2·63 = 0·33	Total ...	438·55 = 54·82
Dry vegetables... ...	0·96 = 0·12		

CHELSEA CLINICAL SOCIETY.—The ninth annual dinner of the Chelsea Clinical Society was held on May 3rd, under the chairmanship of the President of the society, Dr. J. B. Ball, at the Criterion Restaurant, Piccadilly, London. The feature of the evening was the brevity of the speeches and this unusual occurrence accounted for the great success of this dinner. The loyal toasts having been duly honoured the chairman proposed the "Chelsea Clinical Society," and after this had been acknowledged by Mr. A. F. Penny Dr. T. Vincent Dickinson promptly rose and submitted the toast of "The Visitors and Kindred Societies." This was responded to by Mr. C. R. B. Keetley and also by the Mayor of Chelsea. Dr. R. J. Collie in a few words then gave the toast of "The President and Officers of the Society," and the chairman in responding expressed in generous terms the thanks of the society for the services rendered by the honorary treasurer, Dr. A. E. Cooper, and the honorary secretary, Mr. A A. Cooper. The evening was enlivened by some excellent music and dramatic recitals.

The Goulstonian Lectures

ON

AUTO-INTOXICATION: ITS RELATION TO CERTAIN DISTURBANCES OF BLOOD PRESSURE.

Delivered before the Royal College of Physicians of London on March 13th, 15th, and 20th, 1906,

BY H. BATTY SHAW, M.D. LOND., F.R.C.P. LOND.,

LECTURER IN THERAPEUTICS, UNIVERSITY COLLEGE, LONDON; ASSISTANT PHYSICIAN TO UNIVERSITY COLLEGE HOSPITAL AND TO THE HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, BROMPTON.

LECTURE II.[1]

Delivered on March 15th.

MR. PRESIDENT AND GENTLEMEN,—In my first lecture I drew attention to three points: (1) that in 12 out of 68 clinical cases hypertension was observed and that there was with one exception proof that the kidneys were affected in these cases; (2) that the explanation of hypertension in renal disease was unsatisfactory—a toxic cause had been invoked but not demonstrated; and (3) that experimentally I had shown that a rise of blood pressure occurred 18 times out of 19 in which kidney extract was used and that such frequency of a pressor effect was not noticed after the injection of extracts of organs other than the suprarenals—moreover, the pressor effect produced by kidney extract was a prolonged one. At this stage it was necessary to reconsider the statement made by Swale Vincent and Sheen that they had been able to *some extent* to corroborate the observations of Tigerstedt and Bergman,[2] inasmuch as they had found distinct evidence of the existence of a pressor substance in the kidney. The only figure given by Swale Vincent and Sheen in support of their findings shows a comparatively small rise and a small fall with a return to a level a little higher than the original height. In traces taken from my own series of animals it will be seen that there is often a fall and then the pressure rises and is maintained for some time. The different conditions of the animals must, however, be remembered. Swale Vincent and Sheen experimented on a dog, using A.C.E. mixture and presumably artificial respiration as well as morphine; whereas in my own experiments cats were used, anæsthetised by means of ether with spontaneous respiration, and the effect, as already mentioned, is certainly much more striking.

Turning to Tigerstedt and Bergman's paper, it is found that these two workers have ten years ago established results of a very different character from those giv n by Swale Vincent and Sheen, and I think that the results obtained in my small series of cats are in close agreement with the results obtained by Tigerstedt and Bergman, though in little else do I presume to compare my observations with those made by these workers. They had set themselves the task of elucidating the relationship between kidney and heart, being influenced by the teaching of Brown-Séquard on "internal secretion" and by the association existing between certain renal and cardiac diseases. Their first experiment was rewarded by an interesting result. Freshly excised rabbit's kidney was rubbed up with glass powder and physiological salt solution; the fluid obtained was then filtered and a few cubic centimetres were injected intravenously into rabbits. In a short time a well-marked and apparently protracted increase of arterial pressure was observed. In the first experiment within 80 seconds of the injection of five cubic centimetres of the extract the maximal pressure had risen from 70-66 millimetres before injection to 102 millimetres—i.e., an increase of pressure of about 50 per cent. had ensued; in a second experiment the increase after the injection of four cubic centimetres was 25 per cent. within 100 seconds; in the third experiment there was an increase of 18 per cent. in 60 seconds. The investigation was further elaborated. They found that extracts which were prepared by boiling the fresh kidney with water or extracts prepared from the boiled kidney by means of cold water were inactive; moreover, by boiling or heating the fresh extract the pressor effect was destroyed. An important discovery was that alcohol, either absolute or of 50 per cent strength, was quite unable to extract from the preparation any active material. They were also able occasionally, but not always, to demonstrate that diluted glycerine extract had a definite pressor effect; the failures to produce a rise of pressure were attributed to the well-known depressor effect of the glycerine and in one experiment it was thought that the first injection of glycerine extract had produced a fall only. A second dose was given before the true effect of the first one had shown itself and after 140 seconds the pressor effect of the second dose was found to have developed so that the blood pressure was 16 per cent. higher than originally.

One of the objections to the use of the extract which has been injected into the series of cats already referred to is that the material injected was a coarse emulsion and that until this emulsion could be made to yield a soluble substance capable of exerting a pressor effect the results obtained could not be quite convincing. Tigerstedt and Bergman have, however, succeeded in obtaining a solution of the active material which can be quite freed from any granular contents. The kidney is rubbed up with absolute alcohol and filtered; the precipitate is dried in the air at room temperature and is then extracted with salt solution. One to two cubic centimetres of this extract exert as great a pressor effect as the fresh preparation; the active substance is not destroyed by alcohol. They speak of this extract as "Extract A." If it is boiled or heated in a water bath this extract loses its properties, but exposure to a temperature of from 54° to 56° C. does not apparently disturb the pressor effect. The pressor substance, to which these workers give the name of "renin," is not *dialysable*. From these various reactions it may be concluded that renin is a substance *sui generis* and that the effects produced on the blood pressure are not due to any of the crystallisable substances which are excreted in the urine. [Riva-Rocci had also failed to demonstrate a pressor effect in any constituent of the urine.] A further interesting observation was made by these workers that "renin" was present only in extracts made from the *cortex of the kidney*, and not at all or only to a slight extent in extracts of the *medulla*. A crucial test was applied by these workers by injecting blood derived from the renal vein, but, as they explain, it is hardly to be expected that by injecting two cubic centimetres of venous blood derived from the kidney, which in comparison with the extract they had prepared would contain a much smaller amount of renin, much effect would be obtained. Moreover, the blood-supply to the kidney is so rich that the percentage amount of renin in the venous blood would again be considerably less than in the extract prepared from the kidney substance. These same remarks may be applied to explain my own failure to detect in the blood of patients suffering from high blood pressure any pressor quality when injected into cats with undamaged kidneys. They therefore first removed the kidneys from two rabbits one or two days before injection, thereby as it were robbing the blood of the animal of its usual amount of renin. They then injected two cubic centimetres of renal blood derived from the renal vein and were able to establish a rise of pressure of 25 per cent. in one case a minute after the injection and of 13 per cent. in the second experiment two minutes and 50 seconds after injection. From the above results Tigerstedt and Bergman suggest that *renin actually passes from the kidneys into the blood; that in the kidneys a substance is formed which under normal conditions may pass from the kidney into the blood by a process of internal secretion, and may exert a pressor effect.* A preparation of fresh extract made by rubbing up fresh kidney substance with fresh defibrinated blood was also found to be active. These two workers give a long list of all the experiments they carried out in which the nervous system was left intact and excision of the kidney had not been carried out in the animal into which the injections were made. The list includes 23 animals (rabbits) and the number of injections was 53 in all; on 50 occasions the effect on the rise of blood pressure was positive and in three cases only there was a negative effect; but it is to be observed that in each of these three cases injections had already been made with positive

[1] Lecture I. was published in THE LANCET of May 12th, 1906, p. 1285.

[2] Skandinavisches Archiv für Physiologie, 1898, Band viii., S. 223.

effects and it is known that the effects of the latter injections are frequently less marked than earlier ones. A remarkable feature of the effects of injection is the long time during which the effects last. After a somewhat rapid and transitory fall of pressure the arterial pressure begins to rise and reaches gradually a maximum within an interval of from one to two minutes. The blood pressure then sinks slowly but in certain circumstances remains for 20 minutes at a higher level than before the injection. The degree and duration of the rise are apparently independent of the amount of extract injected, except in those cases in which the amount of injection is very small, when it will be found that the rise is less than in doses which are a little larger. In repeated doses the extract exerts in some cases an effect as large as in the first injections, but in other cases, and apparently in most, the influence of the second dose is less than is that of the first one. The absolute rise of pressure in the experiments in which a watery extract was used is in general greater according as the initial pressure of the animal is lower. The experiments with "Extract A," however, show in this particular less regular effects and Tigerstedt and Bergman explain this on the ground that the "Extract A" is not always equally rich in renin and that various individual animals vary in their reaction to its effects. These two authors then proceed to analyse the effects produced. They found that the changes of pulse frequency after injection of renin are not great and it may be concluded that the pressor effects exerted by renin cannot be dependent on alterations in pulse-rate. The pulse changes are much more likely results rather than causes of the rise of pressure. Division of the cervical nerves did not interfere with the effects met with after injection of the "Extract A." Nor does it appear likely that the renin acts upon the heart, for they found that preparations which in an intact animal produce the usual effects are quite unable to show any effect on the isolated surviving rabbit's heart. Nor was it possible to attribute the effects to changes in the chief vaso-motor centre, for the effects were present when the cervical cord was cut and also when the cord was cut at the level of the fourth dorsal vertebra. Nor were the effects due entirely to action on the spinal vaso-motor centres, for destruction of the whole spinal cord by means of a sound failed to abolish the effects completely; they could not, however, exclude some possible effects due to action on the vaso-motor centres of the spinal cord, and this was shown by the fact that when both vagi were cut and an injection of six cubic centimetres of "Extract A" had been made stimulation of the right depressor nerve caused a fall of pressure. This same experiment also showed that the effect was not upon the musculature of the blood-vessels and it will be remembered that Oliver and Schäfer used this mode of experimentation to prove that extract of suprarenal substance did act on the musculature of vessels. The net result of these observations on the analysis of the effects produced by injection of "Extract A" was to show that fresh renal extracts produce rises of pressure by acting on the peripheral nerve centres as well as possibly on the spinal cord.

Finally, Tigerstedt and Bergman consider the question of the fate of renin when it enters the circulation normally. As already stated, under favourable conditions the rise of pressure in intact animals lasts almost 20 minutes. If, however, the kidneys are removed the pressure is raised for a very considerably longer period of time but eventually even in these cases its effect wanes. From this it may be concluded that renin is got rid of from the body partly by the kidneys but also that it is partially destroyed by the tissues or is possibly got rid of by the bowel.

I have quoted the observations made by these two workers because I think their discovery is so important to pathology not only in the study of disturbed action of the kidneys but in the study of the subject of auto-intoxication in general. So careful and so exacting have they been in their work that it is difficult to offer criticisms which would be of great weight. There are some points, however, upon which we require more information. The first is that there is no mention whatever of the anæsthetic used—whether it was of the nature of chloroform or ether or of morphine. It is therefore possible that the same criticism may be offered upon their work as upon my own—viz., that the effects were not obtained in an animal when placed under the most favourable conditions for the investigation of problems connected with the vaso-motor system. The writers expressly state that in the 23 cases in which 50 successful injections were made—i.e., were followed by a rise of pressure—the nervous system was intact; presumably atropine was therefore not administered. Another point is one which is of great importance—they apparently had no failures. In one case already referred to in my own list it will be remembered that the animal failed to respond to any injection and in another respiration was so faulty without injection that the experiment had to be abandoned. In another case the injection of renal extract was followed by a very notable fall of 20 millimetres which lasted 55 seconds; in the light of Tigerstedt and Bergman's work it may be that this was due to some other influence than that exerted by the renal extract or that some change had taken place in the extract, especially as an earlier injection of the same extract in the same animal had given a rise with a maximum of 30 millimetres lasting five minutes and 50 seconds. It seemed as well, however, to endeavour to secure results under the most exacting physiological conditions possible and so a limited number of further experiments were carried out, using renal extract for injection purposes prior to the injection of any other preparation.

The analysis of these results shows that on three occasions when the experiment was carried out, as in my first series, under the influence of ether only with spontaneous respiration a fall succeeded the injection of renal extract. A fall lasted four minutes and 16 seconds and the lowest maximum pressure was four millimetres below the original in Experiment 37. In Experiment 39 the fall was a very great one and reached 50 millimetres, lasting 14 minutes at least. In Experiment 42 a similar fall of 50 millimetres occurred, lasting one minute 51 seconds; the animal used in this experiment must, however, have been under abnormal conditions, for the division of both vagi was not followed by a rise of blood pressure; variations of the distribution of inhibitory fibres in the vagi of the cat are known. In Experiment 38 ether anæsthesia was carried out as well as artificial respiration; the very anomalous result was observed that the first injection was followed by an unusual fall of 75 millimetres and the second by a rise of one millimetre.

Turning now to the results obtained when anæsthesia was procured by the administration of ether and morphine, respiration being carried out artificially, a rise of pressure followed the injection of renal extract on four occasions (Experiments 36, 38B, 41, and 42B). No rise and even a fall occurred in three experiments (Experiments 38B, second injection, 40A, and 41, second injection).

Another condition under which the injection was made was to administer ether and morphine or curari, to carry out artificial respiration, and to cut the vagi. A rise of pressure followed the injection of renal extract in three cases (Experiments 35, 38C, and 39B). A fall occurred in two cases (Experiments 38A and 40B).

These results are obviously unsatisfactory, for although the majority give some support to the view that there is a pressor substance extractable from the kidney, a good proportion of cases show the reverse. It may, however, be conceded that the much more uniform effects produced when the animal is intact and adequate anæsthetisation has been produced by ether give a better idea of the effects produced by renal substance than when various operative measures, &c., have been carried out as well. Considering the frequency with which Tigerstedt and Bergman obtained pressor results with their preparation "Extract A," it may be that further experiments carried out with this preparation under conditions of a more exacting nature—for example, anæsthesia under ether or chloroform and morphine—will give more uniform results. As already stated the two workers referred to do not say what anæsthetic was used and it is not very clear how they prepared "Extract A," for the amount of absolute alcohol added to the original kidney substance is not mentioned nor is reference made to the amount of saline solution with which the dried residue was rubbed up; it was surmised that for the preparation of "Extract A" five times as many cubic centimetres of absolute alcohol should be added to the kidney pulp as there were grammes of that substance. The residue left after the removal of the alcohol in a desiccator was rubbed up with a 1 in 3 saline solution.

Pressor substances have been demonstrated in the suprarenal medulla and in the posterior lobe of the pituitary body and there has been abundant confirmation of the results. The pressor effect of kidney substance was obtained ten years ago by Tigerstedt and Bergman and the results have been quoted so largely by me because the work is so exhaustive

and thorough. Oliver[3] has published his results of the action of animal extracts on peripheral vessels. He made observations on the mesenteric vessels of the frog before and after the application of normal saline solution used as a control and normal saline solution containing 1 per cent. of the extract of an organ dried at 38° C., the temperature being the same for both solutions. Any change of calibre was accepted as the effect of the extract when it exceeded the normal variations and when it was practically *immediate*, was invariable, lasted a certain fairly uniform time and was succeeded by restoration of calibre. Observations were made with the brain plugged and with the brain and cord destroyed. Oliver found no *invariable* change given by the use of extracts of liver, pancreas, kidney, or brain; a moderate constrictive effect, however, was obtained so far as the experiments had been carried out with extracts of spleen, testis, and pituitary gland. Suprarenal extract was found to produce a marked constriction which persisted for from 30 to 60 minutes.

The work of Tigerstedt and Bergman has, so far as I can gather, not been repeated except in the particular of the pressor effect of blood drawn from the renal vein. Tigerstedt and Bergman carried out but two experiments with the blood drawn from the renal vein of a rabbit, injecting it into the veins of another animal; the pressure rose in both cases. Lewandowsky[4] approaches the question of the alleged internal secretion of the kidney as suggested by these experiments and points out that controls were not made. He experimented on seven animals; in one the kidneys had been extirpated 24 hours previously, in one 72 hours, and in the remaining five 48 hours. He injected renal vein blood and used controls in each experiment, injecting blood abstracted from the jugular vein. In all cases the blood was injected into the jugular or facial vein of another animal. The result was that the injection of renal blood gave an effect differing in no way from that of the blood derived from the body as, e.g., out of the jugular vein. In three cases, however, there was a rise of pressure which was not inconsiderable but Lewandowsky concludes it was not a specific rise, for the controls injected with jugular blood also showed a rise. He considers that in part this rise was due to the rapidity of injection but admits that similar masses of saline solution injected under similar conditions were quite incapable of causing such a rise *and concludes that in defibrinated blood substances are present which under certain conditions can cause a rise of blood pressure*. Lewandowsky pursues this problem no further, but ends with a criticism of this part of the work of Tigerstedt and Bergman and denies that the renal blood exerts a specific pressor effect. Whatever may be the verdict as to the value of these observers' two experiments in showing that there is an internal secretion in health, no one can doubt that the significance of their experiments with the renal cortex for pathology is very great. The one thing we should like to know, however, is whether or not other fresh tissue produces a rise of pressure; from the experiments I have made it seems possible that they can do so, but it can be said that brain tissue did not do so, spleen substance only occasionally, and that liver in a very large proportion of cases did not cause a rise of pressure. In the latter case the presence of bile in the tissues causes a difficulty, for it is known that bile salts of themselves cause a fall. So, too, urine causes a fall and if this is not well washed out from the kidney it may be the cause of some of the negative results following an injection of kidney extract. Reasons will be given later to show why brain extract causes a fall of pressure.

We have already seen that 11 out of the 12 patients in whom there was a rise of blood pressure above normal limits had obvious signs and symptoms of renal disease. In the four fatal cases amongst these 11, sclerosis of the kidney was present; in three the *cortex* was *shrunken*. We know that the tonus of the musculature of the blood-vessels is under the influence of reflex stimuli which act through all centripetal nerves and also through an automatic mechanism—that is, through the depressor nerve, which, giving warning when the intracardiac pressure is abnormally high, leads to a fall of pressure through the influence exerted on the vagus and vaso-motor centres. It is through this latter mechanism alone that all those substances which arise normally in health through the disintegration of body tissues, &c., can possibly act on the blood pressure. In disease it is reasonable to believe that in some cases some substances act more markedly upon this automatic mechanism which includes the musculature of the blood-vessels.

The question that now presents itself is this, Can we derive from the discovery of Tigerstedt and Bergman any explanation of the pathological departures which we have already noted as occurring in blood pressures at the bedside? The answer must be that there is good reason to think that they have added a great deal to our knowledge because, so far, no one has been able to associate the alterations met with in the blood pressure in renal disease with any definite cause. If the renal cortex contains a pressor substance capable of causing rise of pressure then, when it enters the circulation which it is reasonable to believe may occur in certain pathological conditions, blood pressure rises.

Tigerstedt and Bergman rightly adopt a most modest attitude towards both the physiological and pathological bearings of their discovery. They have comparatively little to say about the physiological effect of renin upon the circulation and their wisdom is apparent at once, for although it is well known that the cells of the organ are constantly being replaced by new ones, the old passing through a series of changes, to which I will refer presently, preparatory to being removed from the body, it is certainly not satisfactorily proved that such cells in the early stages of their bio-necrosis are capable of being used for the maintenance of physiological arterial tension. But there can be no doubt whatever that when this possibility is transferred to the arena of pathological discussion a very different reception must be accorded to it. We know that in the contracted kidney one of the best established changes is the shrinkage of the cortex, which has been shown to contain more renin or pressor substance than the medulla.

It is acknowledged that high arterial tension is not so constant a feature of chronic parenchymatous nephritis as of the interstitial variety, but still it does occur. It is, however, very common in cases of renal sclerosis. Possibly hypertension is an expression of a kidney condition in which renal parenchyma, little altered or not at all, is passing into the circulation either from changes, as in contracted kidney, associated with obliterative arterial disease or as a result of toxic agents which are more common causes of parenchymatous changes. In cases of severe acute nephritis observations have been made with the sphygmomanometer which show that hypertension also occurs and even may do so within 24 hours from the onset of the kidney lesion. Buttermann[5] found a rise of blood pressure in the majority of 18 cases of acute nephritis; in 13 cases of granular kidney the pressure was *always* raised and in the cases which proved fatal there was *always* a condition of contracted kidney and hypertrophy of the heart; in 13 cases of chronic parenchymatous nephritis pressure was raised in one-third of the cases, in the rest it was normal or subnormal. In three early cases of lead poisoning the pressure was normal. The older observations of Traube and Riegel without the syphgmomanometer also point to the possibility of a rapid rise in arterial pressure in the nephritis of scarlet fever. It therefore seems probable that in view of Tigerstedt and Bergman's discovery and of the inadequate nature of the older mechanical views of the causation of cardiac hypertrophy and of hypertension (Cohnheim, Fagge, and Thoma) maintained hypertension may mean liberation of kidney substance and its entrance into the circulation. Whatever the blood pressure may have been beforehand, if a toxic agent leads to the liberation of sufficient renal parenchyma, or if a sufficiently large district of renal tissue is newly cut off from the general circulation by extension of occlusive disease already affecting the renal vessels, the cells involved yield a pressor substance to the system and cause a rise of pressure above normal. If the liberation is small then there may be little or no disturbance of the blood pressure already existing.

It is well known that sclerosis of the kidney may be found unexpectedly in post-mortem examination, no symptoms ever having apparently called for relief. In other cases uræmia develops quite suddenly in patients previously apparently quite healthy. It is quite conceivable that some of the cases which are now being recognised as cases of increased arterial tension, largely owing to the help of the sphygmomanometer, without any signs of renal disease or of disease of the superficial arteries, are really cases similar to those just mentioned; liberation of renal tissue may be taking

[3] Proceedings of the Physiological Society, 1897, vol. xxii., p. 22.
[4] Zeitschrift für Klinische Medicin, 1899, Band xxxvii., S. 541.
[5] Deutsches Archiv für Klinische Medicin, 1902, Band lxxiv., S. 1.

place and only show itself clinically by the production of increased pressure and by signs which are so slight as to be disregarded or so equivocal as to defy interpretation. Such cases would be included in the group of angio-sclerosis and of pre-sclerosis described by von Basch and by Huchard. Even the cases of hyperpiesis described by Professor Clifford Allbutt may be of similar nature. Extravagant claims must not be made, however, for the discovery of Tigerstedt and Bergman; hypertension must not in the present state of our knowledge be referred to a nephræmia alone; it is possible that other tissues when once freed from accompanying disturbing factors, such as contained excretory matter, &c., will be subsequently shown to produce as constant pressor effects as kidney substance does. Hypertension may be shown to exist in conditions in which other organs than the kidney are undergoing disintegration; in my cases there is no evidence to show that clinically hypertension maintained for a considerable time exists except in cases in which the kidney is affected.

In the list of clinical cases referred to in the first lecture reference was made to the fact that in four of the cases of high tension the patients died and renal sclerosis was found in each of them. *Uræmia was present in all these cases;* the blood pressure was raised above normal till within a few hours of death. Hypertension is considered to be a feature of uræmia[6] and this short list confirms this view. The idea has been advanced that in uræmia a poison is developed which provokes arterio-spasm (Traube), and as a result of this condition such cases frequently present symptoms of mono- or hemi-plegia and yet post mortem no lesion can be found to account for such signs. This difficulty was met with in the first of the clinical cases referred to in the first lecture. Here, again, the power possessed by the renal cortex of producing spasm of the arterial musculature gives support to the view that uræmia, a condition which so far has eluded all satisfactory explanation, may be due in part at least to an abnormal or excessive amount of pressor substance derived from the kidney cells. The view that the vessels of the brain may be contracted by the action of liberated renin is rendered tenable by the more recent observations which show that the cerebral vessels possess a nerve supply. There is no difficulty in attributing the various acroparæsthesiæ, &c., which usher in uræmic manifestations, to arterio-spasm, such as could be induced by the escape of renal tissue into the circulation.

That the blood pressure does not remain high in all cases of uræmia till death occurs does not militate against this renal origin of uræmia because with the suppression of urine which so often occurs there is a retention of material which is able to act as a cause of lowered arterial pressure and, moreover, as will be seen subsequently, one of the results of deep disintegration of tissues in general is to produce substances which cause constantly a fall of pressure.

Just as in the case of hypertension all workers look forward to the discovery of a toxic cause, so, too, in uræmia, the same hopeful anticipations have been made; indeed, some have gone so far as to insist that the toxic cause is an albuminous one. We know that the retention theory is a quite inadequate explanation of uræmia, that the theory that uræmia is due to a failure of the internal secretion of the kidney is also not proven, and that though we possess certain knowledge that ablation of kidney substance causes experimentally a loss of a check upon the rapidity of proteid disintegration and therefore favours an excessive formation of urea, especially in the muscles, such experiments have not given us knowledge of the cause of uræmia (Dr. J. Rose Bradford). But there is reason to believe that Tigerstedt and Bergman, by showing that the renal cortex when once it enters the circulation causes spasm of the arteries, have demonstrated a toxic agent, such as has been invoked by Traube, to complete his hypothesis that arterial cramp is responsible for some at least of the features of uræmia. If we invoke the results of treatment we find that this view is supported, for we know that renal asthma so-called, which is so often met with in sclerosis of the kidney, is able to be greatly remedied by the use of drugs which dilate the arteries. It will be remembered that some of the clinical cases showed extreme hypertension and yet were free from uræmia—e.g., Case 2. It is therefore necessary to invoke some local factor and this may be found in the effect produced by arterial disease; the lumen of a vessel the seat of arterial disease may be large enough to admit sufficient blood in ordinary circumstances, but when once arterial spasm is added as well, the blood passing to any particular organ or district becomes inadequate and hence possibly some at least of the uræmic manifestations. In short, it may be that some of the signs of uræmia are dependent upon a sort of "intermittent claudication" or rather "paroxysmal claudication" of certain vascular areas and that renin may be the immediate cause and local vascular disease a predisposing one; given the absence of either of these factors uræmia may not result, but it is possible to believe that the arterial spasm produced by renal pressor substance may in some cases be sufficient in itself to cause some of the phenomena of uræmia; that this is possible is to some extent shown by the fact that uræmia is not always fatal (Case 9), recurring several times, and occlusive vascular disease may not be demonstrable in all cases.

You will probably, as a result of this suggestion that uræmia is due to the effect of a toxic substance derived from the renal tissues capable of producing arterial cramp, &c., raise the point that Dr. Bradford, and subsequently Dr. Herringham, Dr. Griffiths, and other observers, have published records showing that the cortex of the kidney may be in a condition of acute necrosis and yet uræmia is absent and death occurs in six or seven days, the dissolution being more like that met with in obstructive suppression than in non-obstructive suppression of urine. It may well be thought that such cases would constitute good tests of the correctness of the above view. Unfortunately, at the time such cases were observed blood pressure observations by means of the sphygmomanometer were not made. However, uræmia was absent and yet the cortices of the kidneys were necrosed. There is but one answer to make to this apparent refutation of the above theory—viz., that the arteries of the kidney cortex were completely thrombosed; the cortex was in a condition suitable for the causation of high blood pressure and possibly of uræmia but the vascular occlusion was too complete to allow of the cortical substance gaining access to the circulation.

That obstructive suppression due to impacted stone, &c., does not cause the signs of uræmia to appear is explainable on the ground that the normal urinary constituents in not being able to escape from the body are capable of causing a fall of blood pressure.

Hypotension.—A consideration of the list of 68 clinical cases not only showed the existence of a group of patients in whom high arterial tension was a feature but also a number in whom low pressure was present. The same method of answering the problem of the cause of low pressure has been adopted as in examining for the cause of high pressure. Even quite fresh liver and brain, as a rule, caused a fall of pressure, so that it is conceivable that in diseases affecting these organs—such as cirrhosis of the former and softening of the latter—material is directed into the circulation and produces similar depressor effects. But the problem at once occurs, Is it at all likely that different effects are produced upon the arterial tension according to the degree of altered nutrition which exists in various organs in different diseases or in different stages of such diseases? To answer this problem satisfactorily a digression must be first made in the direction of studying briefly the chemistry of the products of decomposition of the cell body and of its nucleus. Such a task, however, requires the consideration of a phenomenon which has excited considerable interest and which was first seriously studied by Professor E. Salkowski. I refer to the subject of auto-digestion—i.e., a process in which the cell contents undergo liquefaction owing to their removal from the body and so from their natural sources of food-supply and from those means by which the products of their solution are able to be removed. Hoppe-Seyler in 1871 made the following statement: "All organs dying within the interior of the organism undergo, in the absence of oxygen or even in its presence, liquefaction; during the progress of softening leucin and tyrosin are formed from proteid and free acids or soaps from fats. The phenomenon is accompanied by no development of offensive odours and may be compared with the processes which are associated with the action of digestive ferments." Although these observations were made so long ago that the exclusion of bacterial effects could not have been considered, more modern work has proved the correctness of the view that tissues are able on their own account to liquefy.

[6] Ascoli: Vorlesungen über Uraemie (Jena, 1903). (I am indebted to Dr. A. E. Garrod for drawing my attention to this work.)

Hüfner, in 1872, made a discovery which brought the explanation of this process much nearer solution. He found that after extracting the salivary glands of the pig and the lungs of calves by means of glycerine it was possible by precipitation with alcohol to obtain a substance which differed very much from proteids and was able to digest proteid. Thus, digestive ferments appeared to be widespread in the system. It was, however, objected that such processes were entirely post-mortem changes and that they had no representation in the living body—a somewhat singular attitude to adopt, for it is hardly to be expected, as Salkowski says, that when life ceased in the individual such a vital phenomenon as digestion of tissues should only then be initiated; it is much more likely that the processes operating after death are also active during life. Differences exist, of course, in the two conditions, for in life the primary dissociation products are removed but in the dead body such products remain *in situ*.

Salkowski,[7] as a result of the observations made by Hoppe-Seyler and Hüfner, was able to conclude that proteolytic ferments occurred not only in the digestive tract but also were present throughout the body and though weak agencies were necessary to the organism, for they were found in the lowest forms of life. Thus was laid the foundation of our belief in what is now known as auto-digestion or autolysis by means of intracellular ferments—a process which is of importance not only in the study of metabolism in health but which has important bearings on various pathological problems. Schützenberger followed with his observations on the power of yeast to digest itself. Yeast was placed in water for from 12 to 15 hours at a temperature of from 35° to 40° C.; considerably less yeast was found to be present at the end of the experiment than if it had not been exposed to warmth; part of the yeast had evidently gone into solution, because the watery extract of the incubated yeast was found to contain leucine, tyrosine, carnine, xanthine, guanine, and hypoxanthine.

Salkowski, impressed with the probability that intracellular ferments existed in life and were responsible for intra-vital autolysis, made observations on the liver. He prepared the liver by mincing it and placed it in chloroform water. Flasks of this mixture were exposed to a temperature of 40° C. for from 60 to 70 hours and were frequently shaken—"antiseptic" autolysis. The mixture was shown to be sterile at the end of the incubation and control observations were made by boiling before incubation. Salkowski prefers to use chloroform as an antiseptic because of the ease with which it may be driven off from the preparation when no longer required. Toluol has been used by other workers in preference to chloroform: the latter antiseptic is known to prevent not only bacterial development but as with toluol the action of unorganised ferments is also somewhat inhibited by it. Toluol appears, however, to have a great drawback in that putrefactive changes have been known to go on even in its presence. Analysis of the two preparations made by Salkowski showed that as a result of antiseptic autolysis there is a considerable increase of soluble organic substances and this is notably the case in regard to the nitrogenous bodies. The increase of soluble nitrogenous substances is due to the formation of primary dissociation products derived from proteids and nucleo-proteids.

It is well known that the animal cell contains proteids in the cell body which also to some extent prevail in the nucleus and that the nuclei contain various nucleo-proteids. Recent investigation[8] in chemical physiology has been directed largely towards an elucidation of the cleavage of proteids and nucleo-proteids. These former bodies may be split by various agencies such as heat, acid, alkalies, and bacteria and then give rise to what are known as "primary dissociation products." But the same dissociation which is a process of hydrolysis, being associated with the breaking up of water and the incorporation of the liberated hydrogen and oxygen, occurs in digestion of proteids and derivatives by the ferments pepsin, trypsin, erepsin, and arginase. The first two, especially trypsin, are instrumental in simplifying the proteids by producing albumoses and peptones, but also are able, though at a much slower rate of velocity of action, especially in the case of pepsin, to exert those deep disintegrations of proteid derivatives which are special duties of the erepsin and arginase, ferments which are present not only in the intestinal mucosa but also in the tissues of the body, erepsin being almost universally distributed and arginase being found especially in the liver.

The primary products of proteid dissociation include at least four different groups of bodies. Amongst the best known substances are leucine and glycocoll (mono-aminic acids); in the same group occur alanine, asparagine, aspartic acid, glutamic, and amido-valerianic acids. A second group consists of three members which are known as hexone bases because they contain six carbon atoms; they are known as lysine, arginine, and histidine; they have the common feature that they are formed by the introduction of two amino-groups into fatty acids. A third group of primary dissociation products includes derivatives not of fatty acids but of the aromatic series, and the best known is tyrosine; one which has recently been much investigated is tryptophane and another is phenylalanine. A final group includes ammonia, which by the action of ferments can be split off from the proteid molecule directly; also the sulphur-containing substance cystine, scatole, indole and the pyrimidine bases, such as thymine and cytosine. It is probable that between the group of somewhat simplified proteids such as proteoses and peptones on the one hand and the bodies indicated in the above four groups on the other, there exists a group of substances which are intermediate in character and consist of groupings together of various amino-acids; these are known as polypeptides. A number of dissociation products exist but at the present time it is impossible to say whether they are primary or derived by disintegration of other primary bodies; amongst these bodies may be mentioned leucinimide and hydrocyanic acid.

The number of secondary dissociation products capable of arising by the action of hydrolytic ferments upon primary dissociation products is limited. It is known that the amino-acids above mentioned are very resistant to the action of pepsin and trypsin; desamination, or the attack upon the amine constituent in amino-acids, is not a strong feature of peptic or tryptic action, but other ferments are present in the body and are capable of exerting this lytic action, for amino-acids when given in moderate quantities are completely broken up—e.g., glycocoll, alanine, leucine, and phenylalanine. When once amino-compounds are converted into imino-compounds then trypsin, erepsin, and arginase are capable of attacking the imino group.

Important as the study of the decomposition products of proteids may be for a thorough comprehension of the important observations made by Salkowski on autolysis, still greater importance is attachable to the study of the nucleo-proteids which enter so largely into the composition of the nucleus of cells in consort with glyco-proteids.

Nucleo-proteids.—The nucleo-proteids are widely diffused in the animal body and form important constituents of all nuclei. It is known that on the destruction of the cell derivatives of nucleo-proteids are capable of passing into the body fluids and have been found in the blood. They are strong or weak combinations of proteids and various nucleinic acids. Nucleo-proteids yield all the ordinary dissociation products which result from the disintegration of proteids, and in addition they yield pyrimidine derivatives, purin bases and phosphoric acid, as derivatives of the nucleinic acid.

The purin derivatives.—Fischer has indicated by the term "purin" a nucleus having the composition expressed by the formula $C_5H_4N_4$; bodies constructed on such a foundation are spoken of as purin or alloxuric or xanthine bodies. Amongst the best known of these are hypoxanthine, xanthine, uric acid, guanine, and adenine. Just as in the case of the derivatives of proteids, observations have been made on the toxic effects produced by the introduction of such substances into the economy, so also the derivatives of nucleo-proteids have been studied with the same object. By studying the effects on blood pressure of some of these derivatives, it is possible to draw some conclusions as to the possible causes of those interesting cases or occasions of

[7] Salkowski: Virchow's Archiv, 1873, Band lviii., S. 3. For a full account of the subject of autolysis see Salkowski: "Ueber Autolyse," Die Deutsche Klinik, 1903, Band xi., S. 147-182. Also Jacoby: "Ueber der Bedeutung der Intrazellularen Fermente," Ergebnisse der Physiologie, 1902; Biochemie, Abtheil 1, S. 213; and Centralblatt für Allgemeine Pathologie und Pathologische Anatomie, 1902, Band xiii., S. 2. Also Umber: Berliner Klinische Wochenschrift, 1903, No. 9, S. 185.

[8] For many facts connected with the chemistry of proteids and nucleo-proteids, reference has been made to the work of Halliburton; Schäfer's Textbook of Physiology, 1898, vol. i.; Hammarsten's Textbook of Physiological Chemistry, translated by Mandel, 1904; Halliburton's Bio-chemistry of Muscle and Nerve, 1904; Schryver's Chemistry of the Albumens, 1906; and Mann's Chemistry of the Proteids, 1906.

depression of blood pressure which were noted in the list of clinical cases already referred to; the importance of such study is well shown by the knowledge that life is impossible when the blood pressure falls below a certain minimum.

THE CHEYNE-STOKES PHENOMENON IN ACUTE CEREBRAL COMPRESSION.[1]

BY WILFRED TROTTER, M.S. LOND., F.R.C.S. ENG.,
DEMONSTRATOR OF ANATOMY IN UNIVERSITY COLLEGE, LONDON; LATE SURGICAL REGISTRAR, UNIVERSITY COLLEGE HOSPITAL.

THE group of periodic manifestations often referred to as "Cheyne-Stokes respiration" is met with in surgery chiefly as a symptom of cerebral compression, and as a rule is not regarded as being of more than slight practical importance. In surgical writings it is generally described as a terminal condition and therefore of very grave significance in prognosis, while attention is not usually directed to any interest that it may have in diagnosis or to any evidence that we possess as to its causation. Each of these three aspects of the phenomenon will be briefly discussed in this paper.

DEFINITIONS.

As the subject of these periodic phenomena has been somewhat confused by purely verbal ambiguities, some preliminary attempt towards definition has been rendered desirable. In the first place, the phrase "Cheyne-Stokes respiration," or any name in which the word respiration occurs, is unsatisfactory, as it is a matter of common experience that the respiratory manifestations may be absent. Again, many writers maintain a distinction between what is called the true Cheyne-Stokes respiration and the so-called cerebral respiration. The latter is often named after Biot who called attention to its peculiarities in 1876 and laid great stress on its differences from the Cheyne-Stokes type. The Biot type of respiration differs from the Cheyne-Stokes solely in showing abruptly limited groups of respirations with no gradual waxing and waning—that is, the former presents an abrupt alternation of hyperpnœa and apnœa, while the latter shows apnœa alternating with hyperpnœa by a gradual transition and the reduction in the amplitude of the breaths may never reach true apnœa. As this distinction is not absolute, for many transitional forms unite the two types, its maintenance is not of much value. That, however, there is a type of grouped respiration occurring in cerebral cases which Biot was justified in distinguishing absolutely from Cheyne-Stokes breathing there can be no doubt. This is the form of irregular gasping respiration which occurs in the late stages of cerebral compression when the vaso-motor centre has already begun to fail and the blood pressure is rapidly falling. This is a true terminal manifestation and is associated with other evidences of a failing circulation such as pallor and a weak irregular pulse. It presents a fundamental difference from Cheyne-Stokes respiration in its irregularity both in its occurrence and the number of breaths in each group. Such a symptom is, of course, almost necessarily of fatal significance, for it is in essence a condition identical with the gravest kind of shock and could only be met by efforts directly to raise the blood pressure independently of the centre by such means as the intravenous injection of adrenalin and by mechanical compression of the peripheral circulation. Three conditions, then, are recognisable—two, closely associated, of true periodic breathing differing only in the way in which the transition from hyperpnœa to apnœa is effected, and a third, essentially different from both, depending upon vaso-motor paralysis. For the first two there is no satisfactory inclusive name. At present when our knowledge of their pathology is so imperfect the clumsy phrase "Cheyne-Stokes phenomenon" is perhaps the least objectionable.

CLINICAL FEATURES.

No detailed description of a condition so familiar as is the Cheyne-Stokes phenomenon need be given here. It is enough to enumerate the four chief factors in the group and shortly to comment on them. In the fully developed form the following factors are recognisable. (1) Periodic respiration; (2) variations in pulse-rate and strength and in the blood pressure; (3) variations in the size of the pupils; and (4) variations in consciousness. It should be understood that these observations refer only to the Cheyne-Stokes phenomenon as it occurs in cases of cerebral compression.

1. *Respiration.*—As already said, regular periodicity is the principal characteristic. Two extreme types are seen—the gradual and the abrupt transition between hyperpnœa and apnœa. Intermediate forms occur such as an abrupt beginning and a gradual ending of the hyperpnœic period and *vice versâ*.

2. *Circulatory variations.*—Increased strength of the pulse during hyperpnœa is the most important feature. Increase in the pulse-rate is usually observable at the same time. Increase in the blood pressure has also been recorded (Cushing) but such observations must obviously be open to fallacy when made with the Riva-Rocci apparatus on account of the increased muscular tension during the hyperpnœic period. The record would only be unobjectionable if the observations had been made on the paralysed side in a case of cerebral compression. In the only record I have found this point was not noted.

3. *Variations in the pupils.*—The pupils dilate just before or at the onset of the hyperpnœa. This variation is not uncommonly absent and for it to occur the pupillary light reflex must be present.

4. *Variations in consciousness.*—In my experience of cases of cerebral compression showing the Cheyne-Stokes phenomenon the patient has always been unconscious. This is probably not a necessary concomitance but rather an expression of the fact that the compressing agent in the majority of cases compromises the cerebral hemispheres first, while compression primarily affecting the bulb rapidly passes through the period when the manifestation of the Cheyne-Stokes syndrome is possible to the production of a fatal paralysis. Were traumatic compression of a slight grade commonly primary in the cerebellar chamber periodic breathing with full consciousness during the hyperpnœic periods would probably be as common in cases of head injury as it is in disease. In actual experience in such cases during hyperpnœa the decrease in the profundity of the unconsciousness does not reach complete consciousness. The most that is attained is a state corresponding with the well-known second stage of cerebral compression of Kocher, or stage of irritative manifestations. The patient then displays restlessness and certain peculiar movements of the limbs, and, rarely, a paralytic manifestation, such as conjugate deviation of the head and eyes, may for the time disappear. (See Case 2.) He groans and mutters and may fumble in a semi-purposive way with things put into his hand. Of this group of phenomena the peculiar movements of the limbs are the most striking and important. These are no mere irregular jerkings of the limbs such as occur in a steadily maintained irritability of the cortex. The periodic return of function is associated with a fixed result, so that during each period of hyperpnœa a complex and stereotyped series of movements occurs. At or before the beginning of the group of respirations the arm begins to execute such actions as scratching or rubbing, pulling the moustache, and so forth. The movements are always complex, they have the appearance of being voluntary, and are such as might be expected to be habitual. They are, however, performed through hundreds of repetitions in an exactly similar order and with an unvarying preciseness of reproduction. If an attempt is made to interfere with them they are persisted in with considerable force, the hand struggling with the restraint, and if successful completing the series unless apnœa should have meanwhile intervened. If the hand in its wanderings encounters anything the latter is fumbled with, often in such a way as to show recognition; if an unfamiliar object is met with such as a bandage round the head, the hand will often pluck at it and even succeed in tearing it off. In the leg the movements, as might be expected, are much simpler and usually confined to mere flexion and extension. A very important fact is that when a part of the brain is involved to the extent of producing anæmia and therefore paralysis of the limbs supplied by that region, such limbs will not be moved during the hyperpnœic periods. As already stated, it is only in rare cases that a true paralytic symptom disappears during these periods. The onset, then, of a hemiplegia can be watched

[1] Part of a paper read before the Medical Society of University College, London, Jan. 17th, 1906.

by noticing the gradual cessation of the Cheyne-Stokes movements in the limbs involved, while those of the opposite side continue to move strongly.

Certain modifications of the classical type of the phenomenon are very common. It may be said broadly that any one of the four factors may be absent and quite often more than one. The pupil changes are perhaps the least constant; the respiratory periodicity is quite often absent, especially in the earlier phases of the case. The periodic movements are probably the most constant feature. This great variability is possibly the reason why the Cheyne-Stokes phenomenon, though very common in cases of head injury, has excited comparatively little the interest of surgeons.

DIAGNOSTIC SIGNIFICANCE.

The value of the phenomenon in diagnosis is perhaps its most important feature. In the first place, as we shall see later, it affords certain evidence of severe compression of the brain and of implication of the bulb which, if left unrelieved, will surely cause death. It is not, however, an immediately terminal symptom, for it may persist in its fullest development for many days and it indicates a modified functioning rather than a paralysis of the medulla. Secondly, it may give rise to difficulties in diagnosis through the periodic movements being taken for evidence of focal irritation. We have already seen that the movements will be absent from a hemiplegic side; it is therefore obvious that if the movements be taken as pointing to a focal irritation the side of less advanced compression—that is, the side opposite to the hæmorrhage—will be operated on. The movements occur in groups and when they are unilateral do, in fact, present some superficial resemblance to those of a fit. Such a mistake is, of course, easily avoidable and is rendered impossible by the following considerations. 1. The Cheyne-Stokes movements occur at regular intervals and last for regular periods. Between attacks there is complete cessation of movement. 2. They are of wide range and complex character and in spite of their complexity are repeated time after time with great exactitude. In one case, for example, the patient rubbed the side of his face, chest, and abdomen in that order at regular intervals for a great many hours. The limb shows signs of mere fatal automatic action and accommodates itself to some extent to new circumstances; this can be seen if some object is put into the hand or an attempt is made to control the movement. In rare cases one may see on one side the complex Cheyne-Stokes movements and on the other the simpler ones of a fit. 3. They begin simultaneously throughout the limb and affect the arm and leg together, showing no trace of the orderly march of a Jacksonian fit. 4. They correspond with the occurrence of the other Cheyne-Stokes factors, though the possible absence of some of these factors should be borne in mind.

The third point of diagnostic interest in connexion with the phenomenon is the fact that it may reveal the presence of a paralysis otherwise unsuspected or in need of confirmation. It may be stated definitely that if Cheyne-Stokes movements are present and a limb does not participate in them that limb is paralysed. In a case of head injury this will, of course, indicate the site of maximum compression. Such an indication is of especial value in traumatic compression where there is usually evidence of widespread irritation which is apt to prove confusing.

I recall a case, not, however, of head injury, where the capacity of the Cheyne-Stokes movements of, as it were, dissecting out the paralysis was well shown. An infant had become comatose from intracranial pressure; there was nothing in the signs to distinguish definitely between tumour of the brain and meningitis—in fact, the former was on the whole thought to be the more probable. Then periodic phenomena developed with the characteristic movements. These movements, however, left unaffected the arm of one side and the leg of the other, thus affording evidence of multiple paralysing lesions and strongly suggesting the diagnosis of meningitis, which was confirmed post mortem.

The two following cases of traumatic compression illustrate most of the characteristic features of the Cheyne-Stokes phenomena to be seen in this condition.

CASE 1.—The patient, who was a middle-aged man, was admitted to University College Hospital some years ago when I was a house surgeon. About a quarter of an hour before admission he had been thrown from a cart and had pitched on his head. He was bleeding from the right ear and showed signs of concussion. Half an hour after admission he vomited and recovered consciousness. An hour later, having been very restless throughout that time, he vomited again and had a fit which began on the left side and spread to all the other limbs. With the onset of the fit he lost consciousness. After the fit there was rigidity of all the limbs and for a short time slight rapid twitching of the right side of the face. Throughout the following night he was very restless, moving about in bed and trying to pull off the bandage round his head. It was noticed that he moved the left side much more than the right and that he was quite quiet at times, but not whether there was any definite periodicity in the restlessness. The following morning he was still unconscious. Both knee-jerks were exaggerated, the right slightly in excess of the left. The pupils were equal and reacted to light. At intervals there were complicated movements of the left arm—scratching and rubbing the left side of the face and body. The movements were practically identical at each repetition and were executed with a great air of purpose. They coincided with other periodic phenomena of the true Cheyne-Stokes type. The right arm scarcely moved at all. The lower limbs were rigid. The left leg showed flexion and extension movements during the hyperpnœic periods. For the next three days the unconsciousness and the periodic phenomena persisted. The pupils continued to be equal and to react to light. Gradually all movement on the right side ceased, the limbs on that side being rigid and motionless. The limbs on the left side continued to move during the hyperpnœic periods. From the first painful stimuli applied to the left side caused responsive movements much more readily than when applied to the right. On the fourth day the rigidity had disappeared from the right side and painful stimuli applied to the right arm only caused a much delayed responsive movement of the left arm. The periodic phenomena still continued. There was no response to stimulation of the right leg. The patient was trephined on the left side and four and a half ounces of clot were removed from between the dura mater and the skull. The brain expanded rapidly and the periodic phenomena ceased. Later, however, the pulse failed and the patient died six hours after the operation. The temperature had been rising for three days and at death was 106·4° F.

This case illustrates well the early onset and long duration of the Cheyne Stokes phenomenon. It shows also the gradual onset of a hemiplegia as seen in the slow cessation of the periodic movements on the right side, followed by a period in which rigidity persisted and then flaccidity. In this case the distribution of the movements was the principal localising sign. The absence of paralytic pupil changes allowed variations of the pupil to occur with the respiratory periods.

CASE 2.—The patient, a man, aged 41 years, was admitted to University College Hospital on Dec. 18th, 1904. Two hours earlier he had received a bullet wound in the head. On the right side, about one inch in front of the external auditory meatus and two and a half inches from the middle line, there were a bullet wound of the scalp and a perforation in the underlying skull. The edges of the wound were blackened but there was nothing to show whether the bullet had been directed forwards or backwards. No exit wound was present. The patient was pale and quite unconscious and did not respond to any stimulation. The pupils were of moderate size, equal, and reacted to light. Respiration was almost inaudible and very shallow. The head and eyes showed a slight deviation to the left but were fixed in the mid position during the movements described below. From time to time at fairly regular intervals movements of the left arm occurred. They were complex in character, so much so as to suggest consciousness. During the movements the patient unbuttoned and buttoned his waistcoat, pulled his moustache, and felt and fumbled with anything his left hand encountered. At the same time there were movements of flexion and extension of the left lower limb. Careful examination showed the movements to be associated with slight increase in the pulse-rate and the size of the pupil. There was no marked periodicity in respiration but careful listening revealed a slightly deeper catching breath at the beginning of the movements. As a rule the right arm and leg were absolutely motionless but now and then flexion of the fingers and adduction of the thumb were noticed. They seemed to coincide in time with the periodic movements on the other side, but were not observed often enough to allow one to infer any causal relation in

the coincidence. All the limbs were rigid. The knee-jerks were much exaggerated, perhaps the right a little in excess of the left. Well marked ankle clonus and extensor response were present on the right side; on the left side there were flexor response and no ankle clonus. Triceps and supinator jerks were brisk and equal. In this case to a very superficial examination the situation of the wound and the movements on the left side might have suggested a lesion on the right side of the brain causing fits. The Babinski's sign and the ankle clonus on the right side showed, however, that there was some grave lesion of the left motor path. That the movements were periodic and not in the nature of convulsions was clear and showed that there was a hemiplegia on the right side and none on the left. The diagnosis made therefore was that there was probably no serious lesion on the right side of the brain but a large one on the left, probably within the brain substance. The bullet wound on the right side was explored and some loose fragments of bone were removed. No blood clot was found and the brain, which showed a small puncture, did not bulge. The skull was opened freely in the left parietal region. The brain showed a pronounced bulging but exploration of it failed to reveal the bullet or any blood clot. During the operation the respiration became markedly periodic with sudden transitions from apnœa to hyperpnœa. The patient died the next day; the symptoms had not been relieved and the temperature had risen to 106° F. Post mortem the track of the bullet was found to pass downwards, backwards, and to the left, missing the right motor path. It traversed the left lateral ventricle and neatly divided the posterior part of the left internal capsule. The bullet had come to the surface on the inferior aspect of the temporal lobe where it lay against the skull amidst a considerable amount of subdural blood clot.

The case corresponds with Case 1 in showing a very early onset of the periodic phenomena and the absence of paralytic pupillary changes. It is noticeable here that at first there was only very slight and easily overlooked respiratory periodicity, which later, however, became very well marked. It is perhaps worth remark that the case illustrates well how completely the dural septa may limit compression to one chamber of the skull. When the right side was opened the intracranial tension was practically normal. Immediately after, however, the left cerebral chamber showed a very high tension, a fact due no doubt to plugging of the opening of the falx by the dislocation of the left hemisphere. This mechanism and a similar occurrence in the case of the tentorium were pointed out by Hill in his classical lectures on the cerebral circulation.

PATHOLOGY.

In the very large literature concerned with the pathology of the Cheyne-Stokes phenomenon, the significance of the facts of traumatic compression in relation to the problem seems not to have received so much attention as it deserves. For this reason an attempt will be made here briefly to discuss this aspect of the matter. Such discussion must for the sake of clearness necessarily involve the repetition of certain familiar facts.

In the first place, it is necessary to base all such discussion upon the obviously fundamental proposition that all the symptoms of compression of the brain by blood are due to interference with the circulation in the brain. This circulatory disturbance is progressive and its progress is conveniently described in the three stages defined by Kocher in his work upon cerebral compression. These three stages are as follows: 1. The stage of compensation. In this period the effect of the encroachment upon the cranial cavity is merely to cause a partial compression of the larger veins and an escape of cerebro-spinal fluid, without producing functional interference with the brain or, therefore, any symptoms. 2. The stage of venous congestion. Further compression causes interference with the venous outflow, congestion and consequently an increased excitability of the cortex leading to irritative symptoms, such as restlessness, groaning and muttering, jerkings, or rigidity of the limbs. The retinal veins become distended. 3. The stage of anæmia. Further increase of intracranial pressure empties the smaller vessels and produces anæmia with consequent paralytic symptoms. These three stages have been established by direct observation of the brain.

A second basal proposition is that in a case of hæmorrhage these changes are not simultaneously developed all over the brain but are most advanced at the site of the hæmorrhage, so that in a given case the brain lying immediately under the clot may be anæmic and paralysed, around this will be a broader zone which is congested and irritable, while the rest of the brain is normal. Until the congestive stage has reached any given part of the brain no symptoms will be manifested by that part, so that, for example, bulbar symptoms will not appear until the area of circulatory disturbance has reached the bulb. Hence, as is well known, advanced cerebral compression may be present and capable of diagnosis, without the vagus pulse and respiration and the high blood pressure which are so often regarded as the classical symptoms of compression.

The third step in the problem leads us to the significant researches of Harvey Cushing upon the production of these bulbar symptoms. As is well known, he found that when the compression produced such interference with the bulbar circulation as to threaten the vitality of the bulbar centres the vaso-motor centre became active and by constriction in the splanchnic area produced such a rise of blood pressure as sufficed to re-establish the circulation in the bulb. This process he called the vaso-motor reaction and by the demonstration of it he was able to show that the great rises of blood pressure which had long been known to occur in cases of compression are due to a protective mechanism of the utmost importance. This fact is of great significance in treatment, but that aspect of it cannot be entered upon here. The account just given of the appearance of these bulbar symptoms is only the roughest and most general summary of Cushing's experimental results which now demand some further analysis. He found that when the intracranial pressure was raised and simultaneous records kept of it and of the pulse, respiration, and blood pressure, the mode of appearance of the bulbar symptoms might assume four types, which were as follows. 1. With rapid increase of the intracranial pressure signs of great interference with the functioning of the bulbar centres first appeared. The respiration and pulse were markedly inhibited or stopped and the blood pressure fell. After this preliminary failure the vaso-motor centre gradually recovered and the blood pressure rose until it just surpassed the level of the intracranial pressure, the circulation in the bulb being thereby re-established. This form presents interesting analogies with the features of concussion. 2. With gradual increase of intracranial pressure, before the vaso-motor reaction appeared vagus manifestations were called forth with slow deep respirations and slow full pulse. Then the blood pressure rose and overtook the intracranial pressure. This was the normal type of occurrence and presents, of course, the features of "classical" compression with coma, slow pulse, stertorous respiration, and high blood pressure. 3. In some animals by a very cautious elevation of the intracranial pressure a rise of blood pressure could be produced which from the first anticipated and kept just ahead of the intracranial pressure. In this way even such disturbance of the bulbar circulation as suffices to call forth vagus stimulation was avoided and a picture of compression with high blood pressure, but without the classical pulse and respiration, was produced. 4. In certain cases which were not susceptible of complete explanation a type of response was produced which is the most interesting of all in relation to the subject of this paper. The blood pressure, instead of rising to just above the level of, and running parallel to, the intracranial pressure developed rhythmic waves (Traube-Hering curves), of which the crests were well above the intracranial pressure and the hollows well below it. This produced a rhythmic blood-supply in the bulb with the result that when the blood pressure was above the intracranial pressure the pulse was strong and full and the respiration of similar type, whereas when the blood pressure was below the intracranial pressure there were the signs of bulbar anæmia—cessation of respiration and weakening of the pulse. Thus was produced, as Cushing himself says, "a sort of Cheyne-Stokes respiration." The curves he publishes show very clearly the occurrence of these periodic phenomena.

Why this rhythmic variation should in some cases replace the ordinary blood pressure reaction is by no means clear and is in need of further investigation. Cushing suggests that it appears as if the blood pressure initially rose too high and produced an over vascularisation of the bulb leading to a corresponding and in some sense compensatory under vascularisation and that the mechanism once started is self-acting. On such a view as this it is difficult to understand the persistence of the phenomenon as seen in Cushing's

experiments and clinically—see, for example, Case 1, where the periodic phenomena lasted for four days. In the case of a centre so capable of fine and rapid adjustments as is the vaso-motor centre it would be very difficult to understand that a mere excess of reaction at the onset and the rebound therefrom could become so fixed as to recur without any modification or adjustment whatever for several days. And if the Cheyne-Stokes phenomenon as it occurs in disease is of the same nature as is here suggested for it in head cases a very much greater possibility of persistence would have to be accounted for.

Several interesting lines of speculation suggest themselves but the evidence is not sufficient to justify the following out of them here. It does not seem at the present time that we are justified in going further than saying that the facts of cerebral compression afford confirmation of the primarily vascular nature of the disturbance in Cheyne-Stokes respiration. It is, perhaps, permissible tentatively to suggest that when such disturbance is very slight it may produce respiratory periodicity only when the respiratory centre is, so to say, left to itself as in the hibernating animal or during sleep; that it is even comparatively slight in disease where in some cases, as Pembrey has shown, the respiratory periodicity can be abolished by alterations in the quality of the air breathed; while the vascular disturbance is probably much more profound in cerebral compression.

That the periodic phenomena in their characteristic form are not merely terminal and a mode of vaso-motor failure seems to be shown by the following facts. In Cushing's experiments they were prone, so far as one can judge by a study of his records, to appear quite early in the experiment rather as an alternative method of vaso-motor reaction than at the end of an experiment in which the reaction had been at first normal. Again, in cases of head injury the periodic phenomena appear to come on quite early, as is shown in both the cases related above, though of course it must be remembered that *irregular* periodic phenomena are true terminal symptoms. Moreover, Cushing does not refer to any special feature in the method of producing compression in the cases where the vaso-motor rhythm was called forth and we cannot as yet distinguish clinically any peculiarity of the compressing agent in the cases which display the characteristic Cheyne-Stokes phenomenon. The suggestion which seems finally to emerge—and it is, of course, no more than a mere suggestion—is that *one* method of response by the vaso-motor centre to the call for increased blood pressure is a rhythmic rather than a tonic activity and that this response is perhaps a peculiarity of the individual rather than of the stimulus. Suggestions for further speculative discussion, possibly in the direction of general biology, present themselves, but it seems more desirable to suppress than to indulge them, as it is proposed to attempt some further clinical and experimental investigation.

SUMMARY.

The features of the occurrence of periodic phenomena in cases of cerebral compression upon which it is desired especially to lay stress here are as follows: (1) that the Cheyne-Stokes phenomenon is in such cases no mere terminal symptom and therefore of necessarily slight interest, but one of the most characteristic forms of the vaso-motor reaction and one which may be manifest nearly from the onset of compression; (2) that various modified forms of the phenomenon occur and may cause confusion, especially when the respiratory periodicity is absent; and (3) that periodic movements are no less frequent and characteristic than when the phenomenon occurs in disease and that they may be of diagnostic importance in rendering manifest a paralysis and in being movements which are to be distinguished from those due to focal irritation.

I have to thank the members of the surgical staff of University College Hospital for permission to use the clinical material upon which this paper is founded.

Bibliographical note.—The general literature of the subject without any special reference to traumatic cases is dealt with in Gibson's monograph, "Cheyne-Stokes Respiration," Edinburgh, 1892. Pembrey's work on the modification of respiratory periodicity by changes in the air breathed is referred to in "Recent Advances in Physiology and Biochemistry," edited by Leonard Hill, London, 1906. A reference is there made to the original paper by Pembrey and Allen in the *Journal of Physiology*, 1905, but the essential points are all mentioned in the first of these two places. Some account of Cushing's work is to be found in three places. An excellent general exposition was published in the *American Journal of the Medical Sciences*, September, 1902. It is the Mütter lecture for 1901. In the same journal, June, 1903, was published a sequel dealing with the clinical corollaries of the blood pressure reaction and entitled "The Blood Pressure Reaction of Acute Cerebral Compression." A very interesting account with fuller reference to experimental details was published in the *Mitteilungen aus den Grenzgebieten der Medizin und Chirurgie*, Band ix., Hefte 4 und 5, 1902. Finally, there is a full discussion of the bearing of Cushing's researches upon the question of cerebral compression in Kocher's well-known monograph, "Hirnerschütterung, Hirndruck, u.s.w.," in Nothnagel's "Specielle Pathologie und Therapie." In Kocher's book several of Cushing's illustrations and curves are reproduced.

Harley-street, W.

THE ACTION ON BACTERIA OF ELECTRICAL DISCHARGES OF HIGH POTENTIAL AND RAPID FREQUENCY.[1]

BY ALEXANDER G. R. FOULERTON, F.R.C.S. ENG., D.P.H. CAMB.,

LECTURER ON BACTERIOLOGY AND PUBLIC HEALTH TO THE MIDDLESEX HOSPITAL MEDICAL SCHOOL; COUNTY MEDICAL OFFICER OF HEALTH FOR EAST SUSSEX;

AND

ALEXANDER M. KELLAS, PH.D.,

LECTURER ON CHEMISTRY TO THE MIDDLESEX HOSPITAL MEDICAL SCHOOL.

IN the course of an inquiry into the action of "high frequency" electrical discharges as they are employed in medical work the nature of the action of such discharges on bacteria was specially investigated. The majority of the experiments were carried out under the following conditions. The current, obtained from the electric lighting main, was first transformed into a rapidly oscillating current of very high potential by means of an alternator driven by a motor and then into an oscillatory discharge of rapid frequency by means of a condenser and spark-gap. The bacteria were exposed to the action of the discharges whilst suspended in distilled water contained in test tubes. A short length of platinum wire was sealed through the bottom of the test tube and dipped into a layer of mercury at the bottom of the vessel in which the test tube was suspended for cooling purposes. From the mercury in the cooling vessel an "earth wire" passed to a gas supply pipe. The discharges were sprayed on to the surface of the bacterial emulsion from a platinum disc with nine wire points projecting downwards and kept at a distance of about 2·5 centimetres above the fluid. With this arrangement of apparatus the bacteria in the emulsion were exposed (1) to the action of the electrical discharge, and (2) to the action of the electrical current as it subsequently passed through the fluid on its way to earth. Certain modifications of the apparatus were used occasionally but the crucial experiments were carried out with the arrangement described.

Result of spraying the discharges on to the bacterial emulsion through an atmosphere of common air.—When the discharge was sprayed on to the emulsion through an atmosphere of common air it was found that non-sporing bacteria were destroyed after exposures which varied in duration between 7·5 and 15 minutes, while sporing bacteria were more resistant but were also destroyed as a rule within 15 minutes. In each experiment the emulsion was found to be strongly acid at the end of the exposure, the reaction being due to the presence of nitrous and nitric acids in quantities varying between 0·09 and 0·25 per cent., in terms of nitric acid, according to the duration of the exposure and the intensity of the electrical current employed.

The possible factors concerned in the destruction of the bacteria.—It appeared as if four possible factors might be concerned in the causation of the germicidal effect observed

[1] An abstract of a paper read before the Royal Society on May 3rd, 1906 (communicated by Professor J. Rose Bradford, F.R.S.).

in these experiments: (1) the action of the light rays resulting from the discharge; (2) the action of the heat rays resulting from the discharge; (3) the action of germicidal substances formed in the air as a result of the discharge and then taken up in solution by the emulsion; and (4) the direct action of the electrical force itself on the bacteria and apart from concomitant chemical and other action. It was shown by experiment that any germicidal influence of either light or heat rays was negligible under the conditions of the experiments. The chemical substances formed in the air by the action of the discharge included nitrous and nitric compounds, and probably ozone and peroxide of hydrogen. The last two would be rapidly decomposed in the presence of nitrous compounds, and would probably be of importance chiefly in favouring the interaction of nascent nitrous and nitric compounds. Tubes of distilled water were then exposed to the action of the discharge under conditions similar to those prevailing in the former experiments, and after such exposure for 15 minutes the water was found to have taken up considerable quantities of nitrous and nitric acids, and to be capable of destroying bacteria immersed in it for periods of 15 minutes or less. Then solutions of potassium nitrite and nitric acid were made up such as would on admixture yield, after 15 minutes' interaction, an acidity equivalent to that of some of the specimens of distilled water which had been exposed to the discharge. And it was found that such a mixture, with an acidity equivalent to 0·05 per cent. of nitric acid, was capable of destroying all the bacteria which had previously been tested after an immersion of 15 minutes (solutions of nascent nitrous and nitric acids much more dilute than this have an efficient germicidal action). It was concluded, therefore, that under the conditions of the experiments the germicidal action of these substances was sufficient to account for the results observed and without taking into consideration any possible direct effect of the electrical current itself.

Experiments were next carried out in order to ascertain whether the electrical current and discharge had of themselves, and without concomitant chemical action of the kind referred to, any effect on the bacteria under the time conditions of the experiments. The action of the current alone was tested by passing it directly through the bacterial emulsion without any preliminary discharge above the surface of the fluid by means of a platinum disc immersed just below the surface. It was found that if the germicidal action of heat was excluded an oscillatory current such as had been employed might be passed directly through the bacterial emulsion for as long as 60 minutes without obviously affecting the bacteria in any way.

Attempts were then made to test the possible action of the discharge above the bacterial emulsion, followed by the passage of the current through it by repeating our experiments in atmospheres of various pure gases—hydrogen, nitrogen, carbon dioxide, and carbon monoxide—in the hope of thus avoiding the complicating influence of chemical substances formed in common air as the result of the discharge. In many of these experiments, however, it was found that actively germicidal substances were formed in, or above, the emulsion and could be detected in solution at the end of the exposure. This result appeared to be caused in most instances by the presence of water vapour in the atmosphere in which the discharge occurred. It was found that in an atmosphere of hydrogen peroxide of hydrogen was formed in considerable quantities in some instances, and in some the probable germicidal action of nascent hydrogen had also to be taken into account; peroxide of hydrogen was also present in solution in considerable quantity in experiments in which the discharge was sprayed on to the bacterial emulsion through atmospheres of carbon monoxide and dioxide.

In experiments carried out in an atmosphere of pure nitrogen it was again found that nitrous and nitric compounds were formed and taken up in solution in quantity sufficient to destroy the bacteria present. In experiments of this nature, however, in which chemical changes due to the discharge in the gas above the emulsion were kept at a minimum, no germicidal action was manifested.

Conclusions.—In all the experiments in which a decided germicidal effect was observed it appeared that this was due entirely to the action of substances formed as the result of electrical action on the atmosphere in which the discharge occurred; and it appeared that under the time conditions of the experiments the electrical force employed was not capable of exercising any injurious action on the bacteria tested. And it is probable that when in medical practice cases of lupus and certain other cases in which there is an exposed ulcerated surface are treated by "high-frequency" discharges, the results produced are due entirely to the action on bacteria of nitrous and nitric acids formed in the neighbouring air. And from a therapeutic point of view the use of high frequency discharges in such cases must be looked upon mainly as an efficient method for bringing germicidal substances in a nascent and very active condition into contact with the bacteria present in the lesion exposed to the action of the discharge.

NOTE ON A PECULIAR FORM OF HÆMOPTYSIS WITH PRESENCE OF NUMEROUS SPIROCHÆTÆ IN THE EXPECTORATION.

BY ALDO CASTELLANI, M.D. FLORENCE,
DIRECTOR OF THE CLINIC FOR TROPICAL DISEASES, COLOMBO.

IN Ceylon I have come across two cases of a peculiar hæmorrhagic bronchitis which perhaps it may be of interest to publish. The first case was a man, a Cingalese, aged 44 years, who consulted me in April, 1904, believing himself to be affected with consumption. The symptoms were briefly as follows. He had a chronic cough which was generally more severe in the morning; expectoration was more or less abundant and muco-purulent in character; it was non-nummular and not bad smelling. Now and then for periods of two or three days, or even much longer, the expectoration contained blood, the blood being intimately mixed with the muco-pus and varying in amount; sometimes attacks of genuine hæmoptysis occurred, one or two tablespoonfuls of pure blood being expectorated. The patient had suffered from this complaint for two years. All the other members of his family were in good health and there was no history of syphilis. The disease had begun very gradually and without any apparent cause; his general condition had remained fairly good, although a certain degree of anæmia was noticeable; he had not wasted much. He did not complain of night sweats. He had observed rises of temperature, sometimes in the morning and sometimes in the evening.

By examining the mouth and making him spit and cough I satisfied myself that the blood did not come from the gums. The physical examination of the respiratory system, with the exception of a few moist râles at the base of both lungs, was negative. Nothing abnormal was detected in the heart and circulatory system, neither was anything abnormal noted on examination of the other organs. The analysis of the urine was negative. The microscopical investigation of the blood gave the following result: hæmoglobin (Fleish), 60; red blood cells, 4,000,000; and leucocytes, 11,000. An increase (21 per cent.) was noted in the large mononuclears, though there was no history of malaria. The sputum was examined three times for Koch's bacillus but always with negative results. The idea occurred to me that it might be a case of endemic hæmoptysis from distoma Ringeri. I made fresh preparations but no ova could be seen; on the other hand, huge numbers of spirochætæ—or what I thought at that time spirilla—were present. I did not then attach much importance to the observation [1] and was inclined to believe the case to be one of tuberculosis, especially as it is well known that the bacillus of Koch may be often absent when the sputum is very hæmorrhagic. I inoculated two guinea-pigs with the expectoration collected in sterile Petri dishes; both animals survived; one was killed two months after inoculation and no signs of tuberculosis were present.

I lost sight of the patient for more than a year during which time he constantly took one of the ordinary hypophosphite compounds I had prescribed. In July, 1905, he turned up again. His general condition had improved; he felt much stronger, though the chronic cough with blood-spitting had not sensibly diminished. Physical examination of the chest was again negative with the exception of

[1] Spirilla or spirochætæ have been occasionally seen in bronchial discharge by several authors long ago (Eichhorst, &c.), but the parasites apparently were always present in small numbers only.

a very few coarse moist râles as on the occasion of the first examination. The sputum was examined almost every day for three weeks but no tubercle bacilli could be found. Several guinea-pigs were also inoculated again with negative results. The expectoration, especially when much blood was present, was teeming with spirochætæ. The saliva and superficial scrapings from the gums were also examined; some spirochætæ were present but always in small numbers.

The second case was that of a male Indian. He presented symptoms similar to those of the first case; he had chronic cough with hæmorrhagic expectoration; also occasional attacks of hæmoptysis when a certain quantity of pure blood was spat up. According to the patient there had never been any fever and he had not wasted. He was extremely nervous; in fact, he had become neurasthenic, thinking he was suffering from pulmonary tuberculosis. The physical examination of the chest showed only a few coarse moist râles on coughing in the lower part of both lungs. The sputum never contained tubercle bacilli and the guinea-pigs inoculated remained healthy. Spirochætæ were always present in great numbers, especially when blood and muco-pus were present in large amount. Spirochætæ could be found also in the saliva and scrapings from the gums but only in small numbers.

The spirochætæ were always very numerous and stained well by the Leishman method, generally taking up a bluish tint; they could be stained also with the ordinary aniline dyes, though not so well. They were generally mixed with some bacteria, but sometimes when the sputum was collected in sterile Petri dishes and preparations made at once they were practically the only germs present. Vincent's fusiform bacilli were never observed. These spirochætæ were not all alike. They might be divided morphologically into several groups. 1. Very thick individually, from 15 to 30 microns in length, with irregular waves which varied in number but were never very numerous. The parasites, with the Leishman method, stained deep blue; they were pointed at both ends. 2. Spirochætæ resembling the spirochæta refringens (Schaudinn) with a few graceful waves and pointed extremities. 3. Thin, delicate spirochætæ with numerous small, rather uniform waves and tapering ends. Sometimes one of the extremities was blunt while the other was pointed. 4. Very delicate parasites, though thicker than the spirochæta pallida, with very few waves generally irregular in shape.

All the types I have briefly described may be seen in the illustration. Similar types may be found, according to my

Showing the various forms of spirochætæ observed.

experience, also in spirochætæ observed in the mouth; it might be, therefore, that I had to deal with a bronchial or broncho-alveolar localisation of the spirochæta buccalis, which term, there is no doubt, covers many varieties of spirochætæ.

These two cases of hæmorrhagic bronchitis are of an obscure nature; it seems to me that they cannot be considered of a tuberculous origin. The microscopical examination excludes the possibility of a form of endemic hæmoptysis from distomum Ringeri. It might be suggested, perhaps, that possibly the spirochætæ present in such large numbers in the expectoration—sometimes practically without other germs—may have had a part in the etiology of the complaint. It is interesting to note that Plimmer has noticed in guinea-pigs a peculiar form of pseudo-tuberculosis and that in the smears taken from the pseudo-tuberculous lesions he found numerous spirochætæ.

Colombo.

HYPERTROPHY AND DILATATION OF THE HEART IN A CHILD WITHOUT VALVULAR DISEASE OR GENERAL ADHESION OF THE PERICARDIUM.[1]

BY GEORGE CARPENTER, M.D. LOND., M.R.C.P. LOND.,
PHYSICIAN TO THE NORTH-EASTERN HOSPITAL FOR CHILDREN;
AND
THEODORE FISHER, M.D. LOND., M.R.C.P. LOND.,
ASSISTANT PHYSICIAN TO THE EAST LONDON HOSPITAL FOR CHILDREN.

OCCASIONALLY cases of death from cardiac disease are seen in the post-mortem room not only in adults but also in children in which the ordinary well-recognised morbid affections of the heart are absent. Although such cases are rare, at least in children, that they do not attract attention more often is no doubt due to the fact that the idea that even slight degrees of mitral regurgitation are sufficient to account for death is deeply sunken in the medical mind. An apical systolic murmur has been heard during life and after death deformity of the mitral cusps is looked for and not perhaps uncommonly found without sufficient reason. One often hears of the expression "thickened edge of mitral" as if the thickened edge were sufficient to account for death. The so-called thickened edge is frequently merely the normal thickening which is situated where interlacing of the fibres of the chordæ tendineæ takes place at their insertion into the mitral cusps. This is made perfectly clear on holding up the large mitral cusp against the light, when the course of the fibres of the chordæ tendineæ between the layers of endocardium forming the cusp can be readily seen. Although, however, we have frequently seen this normal band of thickening considered to be evidence of disease it is needless to say that abnormal thickening may be present in the same situation. When thickening of the mitral valve occurs it affects the fibres of the chordæ tendineæ from their origin at the apices of the musculi papillares to their termination at the mitral ring. As might be expected, this thickening of the fibres of the chordæ tendineæ is most evident where the normal interlacing takes place—that is, at their insertion into the cusps of the mitral valve. Such a band of thickening cannot, however, interfere with the action of the valve. Should regurgitation be present it is generally mainly due to shortening of the chordæ tendineæ, which shortening prevents efficient closure of the cusps. Slight degrees of mitral regurgitation can, however, hardly account for death and certainly cannot explain considerable general dilatation of the heart.

In the case recorded below slight thickening of the mitral cusps of the character which we have indicated was present, but was not sufficient in degree to have interfered in any way with the action of the valve. Mitral regurgitation was present, but in this case it was secondary to dilatation of the orifice, not to shortening of the chordæ tendineæ. The following are brief notes.

A boy, aged eight years, was sent to the North-Eastern Hospital for Children on Sept. 10th, 1905, by Dr. John Spurway of Brondesbury to be admitted under the care of one of us (G. C.). One year previously the boy had suffered from slight "heart trouble," and four months before admission there had been swelling of the elbows, knees, and hands. On admission the cardiac impulse was in the left fifth interspace outside the nipple line. A systolic murmur was present at the apex and a

[1] A paper read before the Society for the Study of Disease in Children on Jan. 19th, 1906.

reduplicated second sound over the pulmonary area. On Nov. 6th the liver was noted as being two inches below the costal margin. The cardiac dulness extended also over one inch to the right of the sternum. In addition to the systolic murmur at the apex a to-and-fro sound was heard at the base which Dr. Carpenter considered might be either endocardial or pericardial. The pulse was 140. Some œdema of the legs was present. On the 30th the basic murmur was still present and the pulse was still 140. The œdema of the legs was less. On Dec. 11th it is interesting to note that although the boy was in other ways worse the œdema of the legs had disappeared. He died on Jan. 2nd, 1906.

At the necropsy the body was found to be wasted. There was no trace of œdema of the legs. The heart was much dilated. It extended from the junction of the cartilages and ribs on the right side to one inch outside the nipple line on the left; it weighed 10½ ounces. The pericardium was perfectly healthy, except that a few small petechiæ were present over the back of the auricles. Nothing could be found to account for the basic murmur. The pulmonary and aortic valves were both competent to the water test and the cusps were free from thickening. The tricuspid orifice was much dilated; it admitted four fingers, but the cusps were healthy. The mitral orifice was also dilated; it admitted three fingers. The chordæ tendineæ were slightly thickened but not shortened. There was no deformity of either the large or the small flap. "Water-marking" of the interior of the left auricle showed that there had been regurgitation through the mitral orifice during life. The cardiac muscle was pale but to the naked eye there was nothing definitely abnormal. The liver extended three inches below the costal margin; on section it presented the characteristic nutmeg appearance. There was nothing noteworthy about any of the other organs except the lungs, which were dotted over with small circular petechiæ. Microscopical examination of the heart muscle showed a few fibres in which fatty degeneration was considerable and many others in which small granules were scattered throughout the fibres, but the amount of fatty degeneration was not greater than is frequently seen in death from almost any cause. There was little or no increase of interstitial tissue. The microscopical examination threw no light upon the nature of the hypertrophy and dilatation.

As has already been mentioned, the main morbid condition present was dilatation, associated with hypertrophy of the heart, and the question of the causation of this dilatation and hypertrophy presents itself for consideration, as it does in all cases in which valvular disease and general adhesion of the pericardium are absent. In adults there are several causes of such a morbid condition of the heart, but in children possibly almost the only cause is rheumatism. Symptoms of cardiac weakness appear to have occurred in this boy before swelling of the joints was noticed, yet the fact that rheumatism definitely had at one time been present strongly suggests that there had been also an earlier attack which had fallen mainly upon the heart.

The idea, however, that rheumatism, apart from valvular disease and general adhesion of the pericardium, can cause enlargement of the heart may appear fanciful. Let us consider for a moment, however, the enlargement which occurs in association with pericarditis due to rheumatism. In such cases not only dilatation but hypertrophy of the heart may be remarkably rapid. We have seen pericarditis develop in a girl, aged 11 years, while under treatment for chorea and cause death within a fortnight, at the end of which time the heart was more than double the normal weight for a child of that age, and such an event, which was noticed many years ago by Dr. J. F. Goodhart, is by no means uncommon. No other disease but rheumatism produces such a rapid increase in weight of the heart. It may be said that such rapid increase of weight must be due to imbibition of fluid. That may be so, but the heart does not return to a more normal size when the inflammation of the pericardium has subsided. On the contrary, the hypertrophy is generally progressive and the enlargement may become so great that even a child 12 years of age may possess a heart weighing 30 ounces. Barnard, Sequeira, and others have given a simple explanation for the dilatation of the heart in pericarditis. They consider that the pericarditis causes softening of the fibrous pericardium, which yields and allows dilatation of the heart. Hypertrophy follows this dilatation. If, however, softening of the fibrous pericardium were the explanation of dilatation of the heart associated with pericarditis, the dilatation should occur not only in rheumatic pericarditis but in other forms of pericarditis. But in forms of pericarditis equally, if not more virulent, such as the suppurative pericarditis of pneumonia, or of pyæmia, little or no dilatation of the heart takes place. This absence of dilatation in suppurative pericarditis one of us (T. F.) has long pointed out in the post-mortem room and mentioned it in reply to Dr. J. H. Sequeira at a meeting of the Society for the Study of Disease in Children in October, 1900. It is interesting to note, however, that Dr. G. F. Still has since commented upon the same fact.[2]

Since the difference in degree of the dilatation of the heart which occurs in association with rheumatic pericarditis and in suppurative pericarditis is very great, it seems clear that the dilatation rests upon no such simple causation as yielding of the fibrous pericardium. It depends, we believe, upon something more subtle, upon a poisoning of the heart which affects it chiefly in this way during the growing period of life. After the age of 20 years rheumatic pericarditis causes little or no dilatation of the heart. Allowing, however, that the enlargement of the heart is due to rheumatic poisoning, it is nevertheless true that such enlargement is rarely seen to follow rheumatism unless pericarditis has been present. But this is not surprising. Pericarditis is, no doubt, an evidence of the most intense form of rheumatic infection of the heart, and to get infection which attacks the cardiac muscle while the pericardium escapes can hardly be expected to be common. It must also be remembered that some general cardiac hypertrophy is not uncommon in mitral stenosis. To explain hypertrophy of the left ventricle on mechanical grounds in mitral stenosis is not easy. It seems far more reasonable to allow that the hypertrophy is the result of some interference with the nutrition of the cardiac wall by the rheumatic poison. But however that may be, cases are undoubtedly to be seen from time to time of enlargement of the heart without valvular disease and without general adhesion of the pericardium in children who have suffered from rheumatism, and it is reasonable, in the absence of evidence of other causation, to attribute that enlargement to the rheumatism.

OSSIFICATION OF THE FONTANELLES AND CLOSURE OF SUTURES AT BIRTH—A CAUSE OF DIFFICULT DELIVERY.

BY T. LEAHY-LYNCH, L.R.C.P., L.R.C.S. & L.M. EDIN., L.F.P.S. GLASG.

A PRIMIPARA, aged 33 years, with vertex presentation in the first position, who was in labour for the usual number of hours, completed the first stage normally. I ruptured the membranes and left the patient a reasonable time to complete the second stage, but she exhibited failing strength and asked for my help. She was very nervous, so I determined to send for my partner, Mr. R. J. Mackay, to give an anæsthetic and to deliver her with forceps. She was got well under anæsthesia and the forceps was applied, but the handles were separated when the instrument was locked. Delivery was much more difficult and took longer than had been anticipated. For this I endeavoured to find a cause. The third stage over, I examined the baby's head; there were no moulding, no overlapping of the parietals over the frontal and occipital bones, and no overlapping of the parietal bones themselves; there was no trace of a posterior fontanelle or of those at the anterior inferior angles of the parietals; there was a mere depression over the anterior fontanelle or bregma; the sagittal suture was closed as well as the frontal, the coronal, and the lambdoid. In fact, ossification was complete in the fontanelles and sutures. The child was a healthy male, 21 inches in length, and weighing eight and a half pounds. No hydrocephalus was present. The blade of the forceps marked the infant slightly over the left mastoid region. The mother displayed symptoms of puerperal insanity on the third day. She rambled, wanted to get out of bed, looked strange, buried her head in the pillow, took little notice of her surroundings, would

[2] Brit. Med. Jour., vol. ii., 1901, p. 606.

scarcely answer when spoken to, and would not take nourishment. She had diarrhœa, anorexia, and the breasts were empty. The temperature and lochia were normal. She was kept quiet and the baby was taken away; large doses of bromide of potassium and aromatic spirit of ammonia were given, after which several hours' rest were obtained and the symptoms quickly passed off. The breasts filled and the patient became quite well.

My object in recording these facts is to show that the shock of delivery must have been very severe for the patient. The text-books give little information on this point. Herman's "Difficult Labour" does not mention it. Galabin (p. 93) mentions that "the male head is more firmly ossified at birth than the female skull, is half an inch more in circumference; hence arises greater protraction of labour in the case of males, more frequent necessity for artificial aid, and greater mortality both to mothers and children." Cazeaux and Tarnier's "Theory and Practice of Obstetrics," vol. iii., p. 839, states: "To this cause, dystocia, our colleague and friend, Dr. Joulin, Adjunct Professor of the Faculty of Medicine at Paris, devoted a long chapter of his thesis for the Concours. According to him the Germans admit that trouble may be due to the size of the head alone, besides which they also call attention to a peculiarity of the ossification little known in France, which adds to the difficulty of the situation—viz., the development of Wormian bones in the fontanelles causing their solidification." "It is very hard to determine what ought to be done in cases of this kind; it is almost impossible to become aware of the size of the child whilst it is still within the womb, so that the practitioner who finds the progress of the case arrested in an apparently well-formed pelvis will very probably decide upon active interference before the true cause of the delay is detected and apply the forceps or cephalotribe according to the amount of difficulty which the size of the head shall present to its extraction" (Joulin). "The fontanelles at inferior angles of parietal bones close soon after birth. The posterior fontanelle closes in a few months, the anterior remaining open until the first or second year. Sometimes this fontanelle remains open beyond two years, and occasionally persists throughout life" (Gray).

I shall be glad to know if this condition is often met with and the best means of its diagnosis, as the guides to the fontanelles—viz., the sutures—were in this case closed.

Finsbury Park-road, N.

A NOTE ON THE INFLUENCE OF ANTITOXIC SERUM ON THE TUBERCULO-OPSONIC INDEX.

BY T. R. BRADSHAW, M.D. DUB., F.R.C.P. LOND.,
PHYSICIAN TO THE LIVERPOOL ROYAL INFIRMARY; EXAMINER IN MEDICINE IN THE UNIVERSITY OF LONDON, ETC.

WHILE preparing a paper on the opsonic index, a paper which was read jointly with Dr. R. E. Glynn on May 3rd before the Liverpool Medical Institution and which will be published in full in the summer number of the *Liverpool Medico-Chirurgical Journal*, I made a number of estimations for the purpose of ascertaining for myself the fact generally accepted that the tuberculo-opsonic index is practically the same in all non-tuberculous individuals. On one particular day I determined the index of seven persons, free from all suspicion of tubercle, four medical men, two nurses, and a young man, D., in my ward who was recovering from an attack of neuritis, the result of diphtheria, for which he had been treated with antitoxic serum about three months before. The index of the first six worked out well within the accepted normal limits of variation but to my surprise the index of the patient was only half the average of the others. The following are the exact figures: Dr. B., 1·14; Mr. S., 1·05; Mr. C., 0·97; Mr. H., 0·96; Nurse A., 0·95; and Nurse B., 0·92; average 1·00. Patient D., 0·47. The other counts agreed so closely that I felt confident I had made no mistake in carrying out the estimations and I was inclined to suspect that the patient in question had some local tuberculous infection which I had not been able to discover. My late house physician, Mr. C. H. Smith, however, suggested that the low index might be a consequence of the inoculation with antidiphtheritic serum three months before. One of his colleagues, Mr. W. Yorke, had noticed a marked depression of the tuberculo-opsonic index following the administration of a prophylactic dose of antitetanic serum given to a healthy man who had reason to fear he had exposed himself to the risk of inoculation with tetanus. To test the correctness of this explanation I took the tuberculo-opsonic index of eight other individuals who had been treated with antidiphtheritic serum. In three of the cases a second estimation was made after an interval. The following table shows the opsonic index in each case and the time which had elapsed between administration of the antidiphtheritic serum and the estimation of the index.

No. of case.	Interval since the antidiphtheritic serum was administered.	Index.
1	2 days.	1·30
	5 ,,	0·64
2	12 ,,	1·02
	25 ,,	0·35
3	27 ,,	0·89
	41 ,,	0·72
4	25 ,,	0·64
5	26 ,,	0·72
6	26 ,,	0·62
7	27 ,,	0·77
8	28 ,,	0·69
9	3 months.	0·47
Average		0·73

It thus appears that in all the nine cases examined the tuberculo-opsonic index was found below the normal at some period subsequent to inoculation with antidiphtheritic serum. The depression seems to have increased for some time and in Case 9 to have persisted for months. Cases 1 and 2 suggest that the immediate effect of the inoculation is to raise the tuberculo-opsonic index but the data are too scanty to enable us to generalise on this point. It is obvious that it must be of the utmost importance to bear in mind the possibility of some such cause as was present in the foregoing cases before giving an opinion on the significance of a low opsonic index. As to the nature of the influence of the antitoxic sera, antitetanic as well as antidiphtheritic, on the opsonic index it is premature to offer any positive opinion. It is not unreasonable, however, to assume that it is due to some property inherent in the blood of the horse and has nothing to do with the specific antitoxins.

I have to thank my present house physician, Mr. G. L. COX, for his assistance in carrying out the estimations.

Liverpool.

EXTENSIVE RUPTURE OF THE LIVER WITHOUT EXTERNAL INJURY.

BY F. SEYMOUR LLOYD, M.D. LOND.

AT 9.30 P.M. on May 1st I was called to see a brewer's dray man who had just been brought in by his companions and found him to be dead. As no one witnessed the accident it is impossible to say exactly how it occurred, but it seems probable that as the man was in the act of mounting to the box his horses started off suddenly and trying to pass a dray standing just in front of them squeezed his body between the projecting hoods of the two vans. The first intimation that anything was wrong was received by the driver of the first van who, surprised to find the second van starting before his own, looked down and saw it passing with the deceased hanging by the hands to the stays just below the hood. Immediately the dray forged in front, however, he let go his hold, regained his feet, and darted on to the sidewalk where he leaned against a parapet with his head on his left arm and his right hand compressing his abdomen. He appeared to be in great pain and made as if to vomit, but did not do so; after a little while he tried to pull himself together and said, "All right, mate, I'll drive

them home." These were the only words he was heard to utter. He then, unaided, mounted to his box and drove the horses a distance of about 400 yards when the draymen following with other vans saw his head fall over to the right. They ran and stopped the horses and carefully lifted him down from the box and laid him comfortably inside the dray on a bed of straw. Here he lay groaning and rolling uneasily about. He was last heard to groan when about two and a half miles from Luton, where he arrived half an hour later, when I was called to him. The head and hands were pale and icy cold, the trunk being just warm to the touch. The body and limbs were flaccid throughout. The features were pale but composed and the expression was peaceful. Urine and fæces had been passed into the clothing. Careful examination of the body failed to reveal any bruise, discolouration, or other evidence of injury other than two small scratches, one on the right malar process and the other on the tip of the left ear. There was no sign of bleeding from the nose or mouth, though there were small recent bloodstains on his apron; these possibly came from the scratch on his cheek. The abdomen was much distended and highly tympanitic except for a space of two and a half inches in the flanks, more markedly in the right flank. The man was a magnificent specimen of humanity and measured six feet five inches as he lay on the mortuary table. He had been known for his strength and was extremely popular with his comrades.

In accordance with instructions from the coroner I performed a necropsy on the afternoon of May 3rd, 42 hours after death. The body was rigid throughout and post-mortem staining was marked especially in the neck and shoulders. On opening the parietes the abdominal cavity was found to contain a large quantity of thin dark blood; there were also numerous flocculent clots of small size entangled in the meshes of the omentum and between the coils of the intestines, and in the right hypochondrium were larger clots varying in size from that of a marble to that of a fowl's egg. The liver was retracted well under the ribs and only a small portion of the left lobe was visible at the epigastric angle. It was carefully removed and presented the following appearance. The liver was large in conformity with the splendid development of the subject; it appeared pale, but was perfectly healthy in substance. Through the thickest portion of the right lobe was a tremendous fissure, running backwards through both capsule and glandular substance from the anterior edge to the posterior surface, and being so complete that the liver was all but divided by it into two portions, only a narrow bridge of liver tissue about an inch thick connecting them. The fissure was straight and was eight and a half inches long, the surfaces exposed by it being rough and granular looking. The greatest breadth of the torn surface was roughly four inches, tapering thence to a point towards the anterior edge. About the centre of this fissure was another contused tear three inches long running perpendicularly to it outwards to the right; this, however, only penetrated the liver substance for a depth less than half an inch; one or two smaller tears radiated from the point of junction of the major tears in a stellate manner. The gall-bladder and the rest of the liver were normal, as were all the other abdominal viscera. The intestines were collapsed and the stomach was empty. There was no fracture or injury to any of the ribs or the spine. The lungs were normal but were very retracted and pale. The heart was normal. Death evidently resulted from shock and internal hæmorrhage. The deceased had been a most temperate man.

Remarks.—The case furnished several points of interest. 1. The remarkable length and completeness of the rupture. 2. The fact that there was no concomitant injury to the bones or soft parts. This may be accounted for in three ways: (*a*) The thickness of the man's clothing, apron, coat, &c., the evenings being chilly. (*b*) The force was not an instantaneous force delivered by an instrument of small surface area but was presumably a rolling force of large area represented by the surfaces of the board hoods. The effect of one dray moving would be to give a "spin" to the body comparable to the action of a mangle. It would thus be squeezed, the pressure increasing until the moment of closest approach of the drays, and lessening as they drew apart. The capsule of the liver stood this severe strain as long as it could and then, the force still continuing to act, burst open. (*c*) His muscular development. In this young (he was 28 years of age) muscular man the elasticity of the ribs responded well to the strain. 3. That in a case of such extreme injury the sufferer should be able to walk and to mount his box, no easy feat as I proved for myself. Also that he should be able to drive for 400 yards. 4. The very rapid cooling of the body owing to the abstraction of blood from the extremities. Though he could not have been dead for more than half an hour at the most the trunk was only just warm.

Luton.

A Mirror
OF
HOSPITAL PRACTICE,
BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv., Proœmium.

LONDON HOSPITAL.

A CASE OF LIGATURE OF THE COMMON FEMORAL ARTERY AND VEIN; GANGRENE; AMPUTATION; RECOVERY.

(Under the care of Mr. J. HUTCHINSON, jun.)

FOR the notes of the case we are indebted to Dr. H. F. Horne, late house surgeon to the hospital.

A butcher, aged 22 years, was admitted into Cotes ward of the London Hospital on Sept. 1st, 1905, suffering from severe hæmorrhage and collapse. The history of the case was that while engaged in his occupation and dismembering a carcass the double-edged knife he was using slipped and entered the right thigh. On admission he was much collapsed, almost pulseless, the lips were much blanched, and his clothing was saturated with blood. A pad had been applied over the wound and tightly bandaged. No pulsation could be felt in the posterior tibial artery. Ether was administered immediately on admission and a transverse wound was found in the right thigh one inch in length, situated one inch below Poupart's ligament, through which opening blood flowed freely on removing the pad. By digital pressure the iliac artery was compressed against the brim of the pelvis and a longitudinal incision five inches in length was made in the line of the artery and exposed the femoral vessels. The vein and artery were both partially severed and had retracted, a small piece of the vessel wall connecting the upper and lower portions in each case. The upper portions which had retracted under Poupart's ligament Dr. Horne pulled down with Spencer Wells's artery forceps and applied silk ligatures to each by means of an aneurysm needle, the anterior crural nerve being held out of the way. The lower segments of the vessels were similarly dealt with. The wound was partially closed with silkworm-gut sutures and plugged with sterilised gauze. After the vessels had been secured four pints of normal saline solution were injected into the basilic vein of the left arm and the patient was given half a grain of morphine hypodermically on recovering from the anæsthetic, which caused considerable improvement in the pulse. The patient was kept fully under the influence of morphine for the succeeding 48 hours. The leg and foot were thoroughly cleaned and every precaution was taken to keep up the circulation of the limb. With division of both artery and vein it was scarcely to be expected that gangrene could be averted.

The wound was dressed on Sept. 3rd and was found to be quite healthy. Discolouration of the skin had appeared on the foot and extended up the leg to within three inches below the knee. During the following 12 days the wound was continually redressed and gradually closed. The toes and foot gradually became mummified, the gangrene apparently not spreading higher up the leg, and the temperature kept normal. On the 16th the gangrenous area had extended to the upper end of the tibia; the leg was swollen and green, smelling offensively, and one or two small blisters had appeared on it. The pulse was slightly quickened and the temperature had risen to 102·5° F. By the following day the area of gangrene had reached the upper border of the patella. Dr. Horne therefore amputated

at the junction of the upper and middle thirds of the thigh by a longitudinal external and circular incision round the thigh. The femoral vein was seen much shrunken and contained a hard clot. The lower segment of the femoral artery was found to be of the size of a goose quill and feebly bleeding; the surrounding tissues seemed healthy. Three pints of normal saline solution were injected intravenously during the operation as the patient became collapsed. The wound was closed with silkworm gut sutures, a large spiral rubber drainage-tube being left in.

On the morning of Sept. 18th a dark patch of discolouration appeared at the inner angle of the wound, the remainder of the stump being quite warm. The temperature was 100° and the pulse was 102 and strong. On the following day a dark green patch of gangrene appeared at the inner side of the stump. On taking out the sutures the end of the stump was found to be in a sloughing foul-smelling condition and was accordingly syringed out at hourly intervals with peroxide of hydrogen solution, packed with iodoform and boric powder in equal parts, and enveloped in hot lysol fomentations. The patient's temperature was 103·5°. On the 21st the temperature was 100·5°; the gangrene had not spread and small pieces of the slough were beginning to separate. On the 23rd the wound appeared more healthy, some slight bleeding occurring from both flaps. The temperature was 99° and the pulse was 100. By the 25th some pus exuded from the wound on pressure and the under surfaces of the flaps began to show signs of granulation. The dead tissues were completely removed on the 28th; the stump appeared to be quite healthy and granulation tissue was appearing. The cut end of the femur projected from the muscles but no pus exuded from the bone. The iodoform and boric powder were now discontinued, the wound being plugged with wool soaked in hydrogen peroxide. The fomentations were still continued. The incision made for ligating the vessels had completely healed by Oct. 3rd and the stump was gradually healing. On the 23rd the flaps were trimmed and the projecting piece of bone was removed. The wound was sewn up and a drainage-tube was left in, which was removed on Nov. 7th. There was no further rise of temperature and the patient left the hospital early in December.

Remarks by Dr. HORNE.—As an uncommon case of emergency surgery I have thought the above sufficiently interesting to be placed on record. The opportunity is rarely afforded of surgical interference in wounds involving the main vessels, for before assistance can be obtained so severe an injury usually proves rapidly fatal. On referring to the literature on the subject I find that Mr. A. Pearce Gould in THE LANCET of Feb. 5th, 1887, p. 258, publishes a case of a wound of the common femoral vein and secondary hæmorrhage from the common femoral artery followed by septicæmia and death. In this article he gives a table of nine cases of wounds of the femoral artery and vein collected from various sources. Of these two died in a few minutes after the accident, one case recovered, and six died subsequently to the operation, two of whom developed gangrene. At a meeting of the Clinical Society of London in 1895 Mr. C. S. Wallace showed a case in which the femoral vessels were tied for secondary hæmorrhages, the patient making a perfect recovery.[1]

I wish here to acknowledge the kindness of Mr. Jonathan Hutchinson, jun., in allowing me to perform the amputation when it became necessary and to publish this case.

Note by Mr. J. HUTCHINSON, JUN.—The extreme gravity of wounds of the common femoral vessels is well illustrated by the case now recorded by Dr. Horne and by those alluded to in Mr. Pearce Gould's table. To these I can add one more—a youth who died very soon after severance of the femoral artery by a chisel. Thus, out of a total of 11 cases only two recovered, including the man who owed his life to Dr. Horne's prompt interference. With regard to this case the right course after securing the divided vessels was undoubtedly followed—that of waiting to see how far the gangrene would extend. Up to the end of a fortnight, when the patient had quite recovered from the primary shock and loss of blood, we hoped that an amputation just above the knee-joint would suffice; but then the gangrenous process rapidly spread, changing from the dry to the more dangerous moist form, and the symptoms of septic absorption forbade any further delay. The sloughing which followed high amputation was unexpected and most alarming; indeed, with such a large septic surface it looked as though the patient could hardly recover. The result ultimately attained was very satisfactory.

[1] THE LANCET, Nov 30th, 1895, p. 1364.

BRISTOL ROYAL HOSPITAL FOR SICK CHILDREN AND WOMEN.

A CASE OF CONTRACTURE OF THE HAND TREATED BY RESECTION OF PORTIONS OF THE BONES OF THE FOREARM.

(Under the care of Mr. CHARLES A. MORTON.)

A BOY, aged 10 years, was admitted to the Bristol Hospital for Sick Children on March 4th, 1904, with the history that eight months before he had fractured the bones of the left forearm. Splints had been at once applied and were kept on for a month. The patient was seen by the medical attendant the day after the splints were applied and they were loosened by him a week later. The mother said that when the splints were taken off the forearm was "quite rotten" on both sides and that later the skin came off and the hand became gradually bent. It was clear from the history that he could move his fingers and that there was no contraction when the splints were removed, but how much he could move his fingers and whether contraction had been prevented up to that time by the splint reaching to the ends of the fingers there was no means of ascertaining. The contraction of the hand was increasing at the time he went into hospital. There were deep, dense scars on both aspects of the forearm but especially the flexor, as if the muscles as well as the skin had sloughed. The hand was fixed in the flexed position, quite at a right angle with the forearm, and the only movements possible were those of the index and middle fingers and these were very slight. There was no anæsthesia. When the boy attempted to move the fingers the muscles of the forearm were seen to contract down to the level of the scar tissue but not beyond. As the contraction was so great and the structures on the flexor aspect of the forearm were so matted together and to a large extent even destroyed, it seemed clear that only shortening of the bones would allow the hand to be straightened. Mr. Morton did not expect to get much use in the hand. The boy had been taken to another hospital before going to the Children's Hospital and the mother had then been told that the only thing to do was to amputate the hand and therefore she was content to have anything done which would be likely to give her child a hand as useful as, or a little more useful than, an artificial one.

On March 23rd Mr. Morton resected an inch of both the radius and ulna so as to permit the wrist to be straightened, and wired the ends of the bones together. The wound united by primary union and the bony union was quite satisfactory. The wires were later removed. A few weeks after the operation he could slightly move all the fingers but not the thumb. Two months later, after frequent massage and passive movements he could move the fingers a little better and had a very feeble grip. A leather splint was applied to prevent re-contraction of the wrist and he was sent to his home in Wales at the end of June. Mr. Morton saw him again in May, 1905, when he found that the continued use of the leather splint had prevented any re-contraction of the wrist but that the use of the hand had not returned to any great extent. It was, however, better than an artificial hand. The patient could pick up light things between the thumb and the ring finger, and could flex all the fingers and the thumb at the metacarpo-phalangeal joints. The ring finger was considerably flexed and the middle finger was slightly flexed.

Remarks by Mr. MORTON.—As few cases of contracture of the hand treated by resection of the bones of the forearm have been published, the report of the foregoing case may be of value. As I did not see the boy until eight months after the fracture I cannot say whether it was a case of true ischæmic paralysis or whether the loss of power and contraction was wholly due to the destruction of the muscles by sloughing and the contraction of the scar tissue. Sloughing from the pressure of the splints is very common in Volkmann's contracture and it is quite possible that the two conditions were associated in this case.

Medical Societies.

MEDICAL SOCIETY OF LONDON.

General Meeting.—Operation for the Radical Cure of Femoral Hernia.—Appendicitic Abscess associated with Multiple Liver Abscesses.

A GENERAL meeting of this society was held on May 14th, Sir LAUDER BRUNTON, the President, being in the chair.

The following was the result of the election of officers and council for the ensuing year:—President: Mr. C. A. Ballance. Vice-Presidents: Dr. W. Pasteur, Mr. C. W. Mansell Moullin, Mr. John Tweedy, and Sir Edgcombe Venning. Treasurer: Mr. D. H. Goodsall. Librarian: Dr. A. F. Voelcker. Honorary secretaries: Mr. C. S. Wallace and Dr. F. J. Poynton. Honorary Secretary for Foreign Correspondence: Mr. H. J. Waring. Council: Mr. R. C. Bailey, Sir Hugh Beevor, Bart., Mr. C. Carter Braine, Dr. J. F. H. Broadbent, Sir Lauder Brunton, Dr. H. A. Caley, Dr. Edmund Cautley, Dr. G. H. A. Comyns Berkeley, Dr. J. H. Drysdale, Lieutenant-Colonel R. W. Ford, R.A.M.C., Dr. A. E. Garrod, Mr. Francis Jaffrey, Mr. T. H. Kellock, Mr. John Langton, Dr. C. A. S. Leggatt, Dr. Percy J. F. Lush, Dr. F. S. Palmer, Dr. J. S. Risien Russell, Mr. H. P. Symonds, and Mr. W. H. C. Staveley.

The annual reports of the council, honorary librarian, and chairman of the house and finance committee were presented and adopted.

An ordinary meeting was then held and

Mr. W. H. BATTLE read a paper on a Method of Operation for the Radical Cure of Femoral Hernia. He commenced by saying that it was more difficult to deal with large femoral herniæ than with those of similar size in the inguinal region. There was also a greater tendency for the ring to enlarge. The operation he was about to advocate was first performed by him in 1899.[1] After thoroughly cleansing the parts a vertical incision was made over the sac and the contents were dealt with in the usual way. The object of the operation was to form two flaps, an inner and an outer, and to slide the inner behind the outer, securing it over the upper opening of the femoral canal. These flaps were then sutured in position and thus a shutter of living tissue of great strength was placed below the ligatured neck and across the upper end of the femoral canal. Usually no drainage was required. In only one case was the wearing of a truss necessary afterwards. Including the cases mentioned in his paper in THE LANCET in February, 1901, Mr. Battle had operated in this way on 64 cases of femoral hernia for its radical cure. One case was under 20 years of age, 14 cases were between 20 and 30, 23 cases were between 30 and 40, two were between 50 and 60, and two were over 70. The duration of the hernia had varied from a few days to 20 or 30 years. 30 cases were reducible, 30 were irreducible, and four were strangulated. In only four cases did any suppuration ensue. There were no deaths. Only one patient had returned with a recurrence of the hernia, but it was only right to mention that some had been only recently operated on. A somewhat similar operation had been described independently by Mr. R. H. Parry[2] in October, 1901, only he advocated the suturing of the conjoined tendon of Poupart's ligament to Cooper's ligament. In conclusion, Mr. Battle claimed the following advantages for the operation which he had described: (1) the suppression of every trace of the peritoneal infundibulum by the application of a ligature to the highest possible level of the hernial sac; (2) the annihilation of the femoral ring; and (3) the replacement of the septum crurale by a strong musculo-aponeurotic screen. Cases were narrated and illustrated by lantern slides.—Mr. CUTHBERT S. WALLACE remarked on the difficulties of closing the internal ring in such cases and the rigidity of the parts around and the proximity of the great vessels. He thought the operation was a good one and he believed the main cause of its success lay in the application of the three sutures along the line of the inguinal canal which were freed from tension by the second flap. The results of this operation seemed to be very good.

One of the Hon. Secretaries read (for Mr. H. J. CURTIS of Bulawayo) a paper entitled, "A Successful Case of Appendicitic Abscess associated with Multiple Liver Abscesses." The patient was a man, aged 35 years, who had suffered from malaria, dysentery, and syphilis in the preceding years and was admitted to the Bulawayo Memorial Hospital on Oct. 13th, 1904, with a history of one month's abdominal pain. The temperature was 99·8° F., the pulse was 128, and the respirations were 52. There was tenderness at McBurney's point but no swelling. On Oct. 18th a tender swelling appeared in front of the right kidney. On the 19th the abdomen was opened and an inflamed, red, and kinked appendix was removed from behind the cæcum. While this was being done an abscess over the kidney was opened and a large tube was inserted. The abscess was not in contact with the appendix and reached up to the costal margin. On the 31st a large abscess in connexion with the liver was opened through the right tenth intercostal space. The pus was of the "anchovy paste" variety. On Dec. 11th the same kind of pus was noticed in the sputum and on the 16th there was severe hæmoptysis. On the 17th the liver abscess was further explored and a larger tube was introduced. Iodide of potassium in increasing doses was now given and steady improvement was maintained until the patient was discharged on April 1st, 1905. Mr. Curtis then reviewed the details of the case and pointed out as remarkable the absence of high fever when the patient first came under observation. It was open to doubt if the abscess was dependent on the appendix trouble or on the dysentery from which the patient had previously suffered. Amœbæ were found in the pus and probably the appendicitis was an accidental complication of tropical abscess of the liver. The prognosis of liver abscess complicating appendicitis and the frequency of this association were finally discussed.—The PRESIDENT, commenting on the use of iodide of potassium, drew attention to the extremely large doses which could be tolerated with advantage in such cases.—Mr. BATTLE discussed the association of the two lesions and the likelihood of their being accidentally or causally connected. Possibly the hepatic lesion was tropical abscess and the appendicitis simply concurrent.

[1] THE LANCET, Feb. 2nd, 1901, p. 302.
[2] Brit. Med. Jour., Oct. 19th, 1901.

CLINICAL SOCIETY OF LONDON.

Cystic Tumour of the Spermatic Cord.—Carcinoma of the Thyroid Gland.—Perforated Gastric Ulcer treated by Evisceration and Irrigation.—Complete Removal of a Multilocular Cyst of the Pancreas.

A MEETING of this society was held on May 11th, Mr. H. H. CLUTTON, the President, being in the chair.

Mr. CUTHBERT S. WALLACE described a case of Cystic Tumour of the Spermatic Cord. A man, aged 41 years, was admitted to St. Thomas's Hospital in 1904 with what appeared to be an irreducible inguinal hernia and gave a history of abdominal pain and vomiting. However, at the operation a tumour was revealed which consisted of two main cysts with numerous smaller ones, the whole mass lying in the cord beneath the cremaster muscle. At the internal ring the tumour disappeared within the abdomen and could be felt to form a considerable mass in the pelvis. The inguinal portion of the tumour was excised. The operation was followed by recovery with atrophy of the testis from damage to the spermatic artery. Mr. Wallace regarded this case as being of the same type as those described by the older writers under the title "diffuse hydrocele of the cord." Percival Pott in 1773 was the first to describe the condition and he was of the opinion that it was of the nature of an œdema and this view was the one still put forward in English books which make mention of the subject. Mr. Wallace believed that this explanation could not be accepted. The so-called cystic adenomata of the testis and kidney were supposed to arise in remains of the Wolffian body and in their construction were very similar to the tumour under discussion. When the original relation of the testis and kidney was borne in mind it seemed possible that the fœtal remains found in these two organs might also be found in the spermatic cord. It appeared, therefore, not improbable that "multilocular cystic tumour of the spermatic cord" had a similar origin in remains of the Wolffian body.—Mr. E. PERCY PATON referred to a female patient, 30 years of age, whom he had seen for irreducible hernia. A small cystic tumour was found in the inguinal canal similar in character to that described by Mr. Wallace.—Mr. T. H.

KELLOCK thought that such tumours resembled rather the tumours known as hydrocele in the neck, and asked if the fluid had been examined. Another possibility which had occurred to him was whether the tumour might have been an abnormally placed and cystic kidney.—The PRESIDENT quoted a case like that narrated by Mr. Wallace and thought the subject should be referred to more in current text-books. The condition was certainly not a diffuse hydrocele of the cord as at present described in text-books.

Mr. A. C. HUDSON read a paper, illustrated by the epidiascope, on Carcinoma of the Thyroid Gland. A description was given of eight cases of tumour of the thyroid exhibiting the characters of malignant invasion and of six other cases in which, although the ordinary clinical features of malignant disease were absent, the tumours showed the histological structure of carcinoma. Two tumours discovered at necropsies were also described. Reference was then made to the mode of origin of the capsule of a simple adenomatous thyroid tumour and its possible significance in the study of the behaviour of carcinomata. The cases described pointed to malignant disease of the thyroid being somewhat commoner and at the same time more amenable to surgical treatment than was perhaps generally believed. These cases also emphasised the difficulty likely to be experienced in correctly estimating the degree of malignancy of epithelial thyroid tumours solely from the type and arrangement of the epithelial cells and other histological features. There were, moreover, cases of undoubted carcinoma in which metastasis did not occur and the histological structure of these tumours presented various transitional forms.—The PRESIDENT referred to several cases of carcinoma of the thyroid which he had operated upon. The first of these he met with in 1886 and the next in 1903; both of these patients were still living. In another case met with in 1905 the diagnosis presented some difficulty; the tumour was partially removed and although the growth had perforated the trachea the patient did well. Speaking of the diagnosis, the President said that malignant growths, though they might be very small, were more firmly adherent to the trachea than adenoma or any other tumour and were very often encapsulated. The clinical history of such cases was very different from carcinoma in other places, as the tumour was so much slower in its progress.—Dr. C. W. WIRGMAN had seen several cases in which the bones had become secondarily involved, although some of these cases had resembled adenomata in their clinical and microscopical characters.—Mr. W. G. SPENCER remarked that thyroid carcinoma appeared to have such special features of its own that it would perhaps be better to describe cases like those narrated by Mr. Hudson by a special designation, such, for instance, as adeno-carcinoma.

Mr. E. W. ROUGHTON communicated a case of Perforated Gastric Ulcer treated by evisceration and irrigation. The patient was a woman, aged 26 years, who had had indigestion for three weeks followed by symptoms of perforation. The abdomen was opened five and a half hours after the onset of the symptoms and the perforation was closed by sutures. As the stomach contents had escaped freely, soiling all parts of the peritoneum, the abdominal incision was prolonged, the small intestines were turned out, and the abdominal cavity was thoroughly irrigated. The irrigation was commenced in Douglas's pouch, so that the solution might flow in the opposite direction to the extravasated stomach contents, thus minimising the risk of spreading the infection. The operation caused very little shock and the patient made a good recovery. In Mr. Roughton's opinion irrigation could hardly be performed satisfactorily without turning out the small intestines; it was important to start in Douglas's pouch.—Mr. SPENCER remarked that difficulties existed in the tympanites which ensued in the intestines and the strain on the mesentery.

Mr. J. D. MALCOLM narrated a case of Complete Removal of a Multilocular Cyst of the Pancreas, with colo-colic anastomosis 16 days later, followed by recovery. The patient was a woman, aged 50 years. A malignant growth of the left kidney was diagnosed but at the operation a multilocular cyst of the tail of the pancreas was discovered and removed. Healing caused no trouble but symptoms of a partial obstruction of the intestine developed and the abdomen was reopened on the sixteenth day after the operation. The difficulty existed at the splenic flexure and an anastomosis between the transverse and descending colons was effected, after which there were no further urgent symptoms. The tumour, which was to be preserved in the Museum of the Royal College of Surgeons of England, was exhibited. It was a multilocular cystoma with a small amount of solid structure between the cysts. The fluid was not examined. The solid growth, as described by Mr. S. G. Shattock, showed in parts an adenomatous and in parts a carcinomatous structure. Another case [1] in which a similar tumour was removed by Mr. Malcolm was referred to; also one published by Mr. Watkins Pitchford [2] and one recorded by Dr. Reginald H. Fitz.[3] The last named had collected eight cases, all those of "benign" multilocular cysts of pancreatic origin which he could find; some of these showed no new growth of any kind. A case published by Dr. F. H. Dunning [4] resembled the one now recorded by Mr. Malcolm in many details. The rarity of these tumours was noted, the two removed by Mr. Malcolm and that from the case recorded by Mr. Watkins Pitchford being the only specimens in the Museum of the Royal College of Surgeons of England. The question of their origin was discussed and Professor Ambrose Monprofit's [5] case, in which it was necessary to remove the tail of the pancreas and the spleen to complete the operation, was referred to. The tumour in this case was said to arise from the remains of the Wolffian body because of its structure. But on some grounds many of the foregoing cases could be attributed to the pancreas as the seat of their development. Mr. Malcolm's first case contained fluid which was strongly amylolytic and the structure of the second was very suggestive of that of the pancreas. The difficulty of diagnosis was discussed, most of the cases having been regarded as renal or ovarian tumours before operation. Complete removal was held to be the only rational treatment when it was possible, as drainage of a multilocular cystoma, especially if it should be malignant, was a futile procedure.—The PRESIDENT referred to a case in his experience which was mistaken for an ovarian tumour. The pancreas had to be cut through and a troublesome pancreatic fistula ensued. Tumours which could be lifted out of the abdomen like that narrated by Mr. Malcolm must be extremely rare.—Mr. MALCOLM, in reply, expressed the belief that the pancreas could be cut through as fearlessly as any tissue without very serious risk of fistula.

OPHTHALMOLOGICAL SOCIETY.

Congenital Malformed Cystic Eye.—Radium in the Treatment of Rodent Ulcer.—Implantation Tumour of the Iris containing Wood Fibres.—Exhibition of Cases and Specimens.

A MEETING of this society was held on May 3rd, Mr. J. PRIESTLEY SMITH, the President, being in the chair.

Mr. S. JOHNSON TAYLOR and Mr. E. TREACHER COLLINS contributed clinical and pathological accounts of a Cystic Swelling occupying the position of the Left Eye and apparently formed mainly by a forward bulging of the conjunctiva of the upper lid. It was present at birth and steadily increased in size. Mr. Taylor first saw the child when three weeks old and then tapped the cyst with a fine trocar and cannula. It refilled the following day. When next seen, about a year later, it had increased in all dimensions, standing out two and a half inches from the orbital rim and giving a most unsightly appearance. Some discharge and blood had also been coming away from its apex for two months. Mr. Taylor therefore operated under a general anæsthetic and succeeded in removing it in its entirety. Mr. Collins stated that the pathological examination of the specimen showed that the cyst was really due to an enormous distension of the whole globe. The outer fibrous tissue wall appeared to be sclerotic and in places much attenuated. The inner coat corresponded to the retina but nowhere did that portion of it which is normally developed from the inner layer of the secondary optic vesicle lie in contact with that developed from the outer layer. The anterior portion of the cyst was lined by the former—i.e., tissue composed of a delicate network of fibres with branching cells having nuclear bodies amongst them. The posterior part of the cyst was lined by the latter—i.e., a single row of epithelial cells deeply pigmented in places and in others unpigmented. The cavity of the cyst was composed

[1] Transactions of the Medical Society of London, vol. xxi., p. 97.
[2] Transactions of the Pathological Society of London, vol. liv., p. 354.
[3] The American Journal of the Medical Sciences, New Series 120, p. 184.
[4] The American Journal of Obstetrics, 1905, p. 101.
[5] Gazette Médicale de Paris, March 12th, 1904.

of the space between these two layers (the cavity of the primary optic vesicle). The explanation of the formation of this cyst was apparently the imperfect involution of the primary optic vesicle to form the secondary optic vesicle. There had been some attempt at involution both anteriorly and below. Anteriorly the inner wall of the cyst was prolonged backwards in a fold at the bottom of which was a rudimentary lens. So at one stage there must have been some downgrowth of surface epiblast. Below, the cavity of the cyst was considerably encroached upon by a mass of atypically developed vitreous humour. The expansion of the cyst below must have been checked by this upgrowth of mesoblast, hence the chief distension was upwards into the upper lid. As the whole of that portion of the retina which normally forms its inner layers was at the anterior part of the cyst it is not surprising that no optic nerve developed. The lens presented a defect in the formation of its posterior capsule. Through the gap in it mesoblastic tissue had extended forwards, becoming mixed with the lens fibres. A nodule of hyaline cartilage was met with in the sclerotic at the posterior part of the specimen. The principal pathological features were illustrated by lantern slides.—Mr. W. H. H. JESSOP referred to the hardness of cataract in microphthalmic eyes which was probably due to this admixture of mesoblastic tissue with persistence of the hyaloid artery. He mentioned one case in which the entire contents of the globe had been removed in an attempt to withdraw the lens by forceps.

Mr. J. MACKENZIE DAVIDSON gave a brief *résumé* of cases of Rodent Ulcer treated by exposure to Radium. In 1896 Becquerel discovered the effect of uranium on photographic plates protected from ordinary light rays. The investigations of Madame and Professor Curie culminated in the discovery of radium, a metal of the barium series obtained from the residue of pitch-blende, which emitted rays of three kinds: (*a*) those which might be stopped by a sheet of paper and which did not penetrate the glass tube but gave rise to scintillation; (*b*) those which corresponded with the x rays within the tube, which penetrate glass but not lead or platinum; and (*c*) those equivalent to the extreme of penetration of x rays, capable of passing through several inches of glass and even metal. These last were the specially effective rays. The first application of radium for rodent ulcer was in the vicinity of the tear-sac where x rays were inapplicable or had failed. The ulcer, about an inch in diameter, was completely cured in five applications. Radium shaken down to the bottom of a thin glass tube was applied to the diseased area for about half an hour at a time. No sensation was felt, but in about eight days there was some reaction with formation of a crust and pus. Fresh applications were made at intervals of a month or six weeks. The cases cited were 14 in number, half in men and half in women. All were completely cured, the number of exposures varying from one to 12, repeated at intervals of from four to six weeks. The speaker said the tubes of radium underwent no change themselves and having been once procured were permanent—a great advantage in comparison with x ray tubes. He spoke of the excellent results obtained but insisted on the necessity of complete cure, as if patients desisted before this was effected they were prone to relapse.—Mr. M. S. MAYOU stated that when ulcers were so deep as to affect the bone they were intractable to this mode of treatment.—Mr. T. J. P. HARTIGAN said the first case of the kind treated and published in this country was one at the Hospital for Diseases of the Skin, Blackfriars, in 1903. Nearly 6000 such applications had been made there since. He questioned whether there were not some variations in quality or radio-activity in different specimens of radium and recommended the employment of celluloid rather than glass for the tube. 23 cases of rodent ulcer had been so treated without a failure and the method had been extended to cases of Paget's disease and psorospermosis and also to superficial carcinoma with excellent results. There were six cases now showing no sign of the disease.—Mr. DAVIDSON, in reply, said cases did not improve when the disease extended to the bone, otherwise the radium treatment might be regarded as a specific for rodent ulcer. He preferred glass for the retainer as it cut off the burning rays and he had a piece of platinum wire fused into the sealed tube to act as a conductor to prevent electric explosion. Moisture weakened the radio-activity and radium was still very costly, about £10 per milligramme.

Mr. R. PICKARD described with the aid of lantern slides an Implantation Tumour of the Iris which contained wood fibres. The patient was a girl, aged 14 years, and the tumour had been noticed for nine years. It was three millimetres in diameter and was situated below the pupil. On removal the basis was found to be granulation tissue containing three wood fibres of coniferous origin (displaying bordered pits). The tumour consisted of epithelial cells and contained several cysts, some of which were formed by degeneration of cells and others by the occurrence of fissures. There was no direct history of injury to the eye or trace on the cornea. Probably a fine splinter perforated the cornea ten years before when she fell and struck her nose against a table.

The following cases and card specimens were shown:—

Mr. SYDNEY STEPHENSON: A case of High Myopic Astigmatism, showing Fissures in Descemet's Membrane.

Mr. G. WINFIELD ROLL: Coloboma of the Choroid.

Mr. A. L. WHITEHEAD: An unusual case of Tumour of the Iris.

Dr. F. W. EDRIDGE-GREEN: (1) Apparatus for Estimating Hue Perception; and (2) a Spectroscope for Monochromatic Patches.

Dr. RAYNER BATTEN: Recurrent Orbital Tumour after Œdema of the Orbit.

Mr. W. I. HANCOCK: Tubercle of the Conjunctiva.

Mr. G. H. GOLDSMITH: Concussion Hole at the Macula.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.

Presidential Address.

THE jubilee meeting of this society was held on May 11th, Sir SHIRLEY F. MURPHY, the President, being in the chair.

After alluding to the interest attaching to the present meeting as falling within 48 hours of the fiftieth anniversary of the foundation of the society, the PRESIDENT referred to the circumstances that led to the institution of medical officers of health. It had been recognised that the great mass of the poor lived under conditions incompatible with a healthy existence, that these bred disease, and disease and misery fostered a spirit of discontent that was becoming dangerous to society and the State. The inquiries conducted by Edwin Chadwick, Southwood Smith, Neil Arnott, and James Phillips Kay led to the first public health legislation in 1848 when the General Board of Health was constituted. The Board did good work in the collection of evidence and statistics until in 1854 the duties were taken over by a department of the Privy Council since transferred to the Local Government Board. Under this Act the larger towns were empowered to appoint medical officers of health, which Liverpool had done under a local Act of the previous year. The first appointment under the Act was that of John Simon to the City of London. In 1855 the Metropolis Local Management Act made these appointments incumbent on all the vestries and local boards and next year 47 medical officers were appointed, among whom were Letheby (in succession to Simon), Burdon Sanderson, Odling, Pavy, Bristowe, Ballard, and a little later G. Buchanan, destined to succeed Simon at Whitehall. After a preliminary meeting at the house of Dr. Pavy the Society of Metropolitan Medical Officers of Health was formally inaugurated on May 13th, 1856, at the house of the Medical Society, under the presidency of Mr. Simon. Committees were appointed for various lines of investigation, as trades nuisances, adulteration of food, etiology of preventable diseases, statistics, meteorology and so on. Medical certification of the causes of death was not then compulsory but they exerted themselves to obtain information as to the causes, immediate and remote, the sanitary conditions of the houses, and the prevalence of sickness, but for various reasons the returns from public institutions were not continued for more than a year. Though it had not yet been found possible to establish a regular system of registration of all cases of sickness it was already felt that the issue of weekly returns of all cases of notifiable infectious disease should enable the medical officer of health of to-day to take steps for the repression of an outbreak that would be already beyond control when one or more deaths had occurred. The labours of these committees, with the advantages derived from the greater accuracy and completeness of the returns of the Registrar-General, gave an enormous impetus to inquiry and research, and in these and the few following years Dr. Snow's investigation of the means by which cholera was

spread, with special reference to the behaviour of the epidemic of 1848 and 1854 in the districts of the Chelsea and Southwark Water Companies, the general recognition of the difference between typhus and typhoid fevers, the spread of the latter by means of milk, the aerial diffusion of small-pox, first suggested by Dr. Hillier in 1862, the differential diagnosis of scarlet fever and diphtheria, and the duty of State intervention in the conduct of trades and manufactures injurious to health with which the name of Dr. Ballard would always be associated effected little less than a revolution in the sanitary administration of the country. The appointment of medical officers of health in the provinces and rural districts, though optional until the passing of the Public Health Act of 1875, was becoming more general every year, affording many opportunities for investigating the means by which communicable diseases were spread. Another report of milk-borne disease, this time scarlet fever, was received in 1867 from Mr. Taylor of Penrith and was followed by so many from all quarters that its possibility and indeed its frequency were amply demonstrated. In 1877 and 1878 the like causation of outbreaks of diphtheria was proved by Mr. E. L. Jacob, a Fellow of the society, and Mr. W. H. Power, who, with the help of Dr. Klein, followed up the inquiry experimentally, proving with complete success that not only did the milk act as a simple vehicle of the infection from man to man, but that the cows themselves might suffer from modified forms of human diseases, imparting them to man with their normal characters. In 1886 Mr. G. Turner, medical officer of health of East Herts combined district, recognised diphtheria in a fatal disease of cats occurring simultaneously with diphtheria in man. Thus the medical officer of health could no longer ignore the diseases of the lower animals or the study of parasitic organisms. Within the last few years the labours of Manson, Bruce, Ross, and Nuttall in this country, with others on the Continent and in America, had shown the important part played by protozoa in the etiology of disease, parasites requiring an intermediary host in which to pass one phase of their life cycle. Though malaria had been practically stamped out and yellow fever and trypanosomiasis failed when imported to be communicated to other persons because the intermediary hosts could not live in our climate, the liability of rats to contract the plague and the connexion of the cimex with relapsing fever which was epidemic in these islands in 1868–69 could not be ignored. In 1841 the Registrar-General had applied the name "zymotic" to certain diseases but it was not until 1857 that Pasteur began his researches into the connexion of fungi with disease, identifying the cause of pebrine as Pollender and Davaine did that of anthrax. During the following years Villemin proved the infectivity of tubercle and the science of bacteriology grew up in the hands of Koch, Klebs, Löffler, Eberth, Gaffky, and others, who between 1876 and 1884 identified and cultivated the bacilli of tubercle, cholera, typhoid fever, diphtheria, &c., to which Kitasato in 1894 added plague, as others had those of pneumonia, influenza, meningitis, &c. Between 1886 and 1890 Salmon, Roux, Ehrlich, Behring, and Kitasato, working with sterilised cultures of hog cholera, tetanus, anthrax, and diphtheria, and more recently Haffkine, Yersin, Roux, Pfeiffer, Koch, and Wright, with those of typhoid fever, cholera, and plague, succeeded in rendering animals immune to these diseases, but the greatest triumph had been the antitoxin obtained by Behring through the inoculation of horses with virulent cultures of diphtheria, now used for preventive and curative purposes on man. Many forms of immunisation, permanent or temporary, were at present under examination—active or direct, by inoculation with living bacteria, by bacteria killed by heat, or attenuated by lesser degrees of heat, desiccation, or passage through another animal, or by bacterial extracts; and passive or indirect, when the toxins were neutralised by the inoculation of substances known as antitoxins produced in an animal that had been previously immunised in the direct method; and lastly, antibacterial serums which were still on their trial. Another line of research was that followed by Sternberg and Metchnikoff between 1881 and 1884 on phagocytosis or the ability of the leucocytes to devour and to destroy the bacteria as an explanation of normal resistance to infection, and by comparing the phenomenon as exhibited in the serums of a healthy person and of one suffering from tuberculosis the phagocytic index furnishing a measure of the probability of ultimate recovery of the latter. Ehrlich's side-chain theory and Wright's of the existence of opsonins increasing the susceptibility of the bacteria to phagocytosis were among the most recent contributions to this complex question. Ehrlich, von Behring, Metchnikoff, and many others were working at the problems of the transmission of immunity by the mother to her offspring in utero or through her milk, and the employment of the Gruber-Widal test for this purpose pointed the way to further discovery. Turning from scientific investigations in the laboratory to practical administrative work the President referred to the progress made in the protection of water-supplies from sewage pollution and in the prevention of the spread of typhoid fever through the specific contamination of shell-fish. Discussing the failure of the provision of isolation hospitals, on which enormous sums had been spent, and the universal enforcement of notification to "stamp out" infectious diseases, he referred to the influence of mild unrecognised cases and of "carriers," or persons who, though escaping themselves, conveyed the infection to others; to the observations of Whitelegge, Longstaff, and Newsholme on recurring waves of greater or less virulence and fatality which might or might not coincide with the recurring waves of prevalence, and to the apparent failure of preventive measures as at present practised to influence the prevalence of some diseases as showing that there must be causes at work still unknown to us which would if discovered help to explain the variations in severity and prevalence of diseases, as whooping-cough and measles, against which no measures were or could be taken. After discussing the various questions connected with the propagation of tuberculosis in the adult and the infant by inhalation and by ingestion, the relations of human and bovine disease and tuberculous milk, the inhalation of the dried spores and the prohibition of spitting, and Flügge's recent observations on the greater activity of "cough spray," which if ignored rendered all other precautions unavailing, he concluded by asking what practical and palpable results had been achieved during the last 30 or 40 years by the efforts of sanitary reformers. The mortality from tuberculosis had in 50 years been reduced by half, but a considerable reduction had already taken place before its infective character had been recognised or any measures had been undertaken to prevent its spread. There was no evidence of lessened activity of the bacilli. Had the resisting power of the population been increased by better food, clothing, and housing? There was no question that the standard of living of the masses had been greatly raised and the opsonic index showed the effect of better food, &c., on individuals. There might be some truth—how much one could not say—in Newsholme's theory of the benefit to the community from the segregation of persons who in their homes had been foci of infection. After paying a tribute to the good work of Dr. B. A. Whitelegge and his staff in the control of industrial diseases, the President turned to the evidence afforded by the returns of the Registrar-General as to the reduction of the death-rate between 1851–60 and 1891–1900. This had fallen no less than 18 per cent.—16 per cent. for males and 20 per cent. for females. Between the ages of five and 20 years it had fallen no less than 50 per cent. but between those of 45 and 75 years it had actually increased. Dr. W. Ogle ascribed this to the reduction of the earlier age periods having led to the survival of a generation of feebler individuals who would formerly have died young, but a careful study of the variations at each successive age period indicated that this cause was ceasing to act and the older individuals were becoming healthier than they were 20 years ago. Taking the popular division of diseases into preventable and non-preventable, it appeared that the reduction of the death-rate from the former was 42 per cent. but that of the latter only 4 per cent. The decline of the former was evident at all ages, that of the latter at the earlier only, for after 35 years they were increasing. A little while ago the increase began at 25 years and if this improvement continued it might be hoped that in another 50 years the reduction at advanced ages would be nearly as great as at the earlier. There was no apparent decrease in the infant mortality, but in St. Pancras Dr. J. F. J. Sykes had shown that a general improvement was masked by an increase confined to the first week. Did this point to ante-natal conditions? The decrease in the birth-rate, a phenomenon of far-reaching meaning, demanded careful consideration and it was remarkable that the death-rate in the most insanitary areas in East and Central London declined as alien

immigrants superseded the original population. As a rule, however, the infant mortality varied inversely as the number of rooms in each tenement. Death-rates generally followed overcrowding with all its attendant evils, except the mortality from cancer, which though almost confined to past middle life was wholly independent of social position or sanitary conditions and they might venture to hope that by improved standards of living the physical condition of the nation might be enormously improved, though perfection was unattainable.

EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

Exhibition of Patients.—An Infants' Milk Depôt.—Inguinal Hernia in the Female.

A MEETING of this society was held on May 2nd, Professor WILLIAM S. GREENFIELD, Vice-President, being in the chair.

Professor P. EHRLICH of Frankfort was elected an honorary member of the society.

Mr. H. ALEXIS THOMSON showed a man, aged 60 years, who suffered from Chronic Jaundice and Distended Gall-bladder, with relief of symptoms after cholecystenterostomy. He said that Courvoisier's law stated that 90 per cent. of cases of persistent jaundice were not due to impacted gall-stones but to malignant disease. On opening the patient's abdomen no evidence of malignant disease was found but the gall-bladder held about a pint of fluid. Lest drainage would be required permanently the gall-bladder was joined to, and opened into, the small intestine. The man went steadily downhill for some weeks. On going home, however, he treated himself by the "violet cure" for three or four months and was now quite well. The case was probably one of an inflamed condition of the head of the pancreas so compressing the head of the common bile duct as to cause obliteration of its lumen.

Mr. J. M. COTTERILL showed a lad suffering from Aneurysmal Varix of the Right Orbit. Six months ago he fell out of a vehicle, striking his left occipital region, and three days later his right eye began to project. The sight was reduced to one-tenth of the normal. The angioma concerned the ophthalmic artery and its branches. Treatment by electrolysis was out of the question. If operation were to be performed Mr. Cotterill would prefer ligature of the common carotid.

Dr. W. ROBERTSON, medical officer of health of Leith, read a communication entitled "The Practical Side of an Infants' Milk Depôt." He said that, in spite of his knowledge of the weaknesses and shortcomings of such institutions, he still believed in the value of the municipal milk depôt. It had been, and still was, said that the milk depôt was merely a clumsy cloak for an impure milk-supply. A pure ideal milk-supply ought to come from cows fed on rich pasture land; cows, milkers, dishes, and pitchers must be scrupulously clean and chilling of the milk should be carried out. In Edinburgh and Leith the dairymen were in most cases unwilling to move out of their beaten track or to put in operation what they were pleased to term "fads of health officials." They preferred to add formalin or boric acid rather than to chill the milk. The utmost vigilance was required to prevent adulteration by the addition of water, skimmed milk, and preservatives. In Leith a few selected cases were taken to court, as experience had shown that only glaring instances of adulteration were likely to result in a conviction. In Glasgow the least aberration from the milk standard was met by an adequate fine. Obviously, in the east of Scotland adulteration was encouraged and it had developed into a fine art. Last year an outbreak of diphtheria in Leith was traced to a dairy in which several cows were suffering from a teat eruption. The dairyman was asked to isolate the affected cows and to destroy their milk. This he promised to do but there was no diminution in the number of cases notified at the end of the week and in each case milk was obtained from the suspected dairy. It was found that the milk from the affected cows was still being sold, as the "doctor had been talking nonsense." Relays of inspectors were stationed at the dairy premises for a fortnight and they saw that every drop of suspected milk was poured into a drain and coincidently the epidemic was checked. Dr. Robertson was in entire agreement with the idea that cowsheds should not be found in towns. The dairyman knew perfectly well how important it was to groom cows and to have clean hands to milk the animals; he knew that cooled milk would keep sweet in the warmest weather and up-to-date dairymen sold milk in clean bottles. As soon as the public was taught to insist upon chilled milk delivered in bottles the dairymen would meet the demand. It was a mistake to think that an elaborately built cowshed was necessary to insure a pure milk-supply: with a wooden shed a pure milk could be, and was in practice, furnished. The motive power was the intelligence of the dairyman himself, but beyond must be the momentum of public clamour. The medical officer of health could only administer laws and make suggestions. It rested with the medical practitioner to teach his patients that what was best for them and their offspring was a milk-supply collected under what might be termed aseptic precautions. It was to counteract gross pollution on the one hand and ignorant methods of feeding on the other that the present-day milk depôt was established. The long septic feeding tube was done away with, methodical feeding was taught, and in general mothers were afforded an object lesson in correct principles of feeding. Gross neglect in feeding was the prime factor in causing so many fatal cases of diarrhœa. As regards the milk, speaking generally, it was necessary to be content with an impurity of at least 12,000 bacteria per cubic centimetre. That was looked upon as a standard supply of clean milk. The milk for the Leith depôt was obtained from a dairy farm near Haddington where the cows were for the greater part of the year fed upon natural pasture and where every precaution was taken to insure a clean supply. At the depôt water, cream, and sugar were added, the proportions varying with the ages of the children to be fed. As a rule the fat varied between 3 and 3·4 per cent. The bottles, after being filled, were placed in the steriliser and kept at a temperature of 180° F. for 20 minutes and then placed in a tank of cold water. When the depôt was first opened an attempt was made to sterilise the milk. It was subjected to a temperature of 212° for 30 minutes (a preliminary half-hour being required to reach this degree of heat). The procedure was unsatisfactory because the prolonged heating frequently caramelised the milk; besides the milk was not sterile and two cases of scurvy occurred amongst those using this milk. These cases seriously affected the depôt in the eyes of the public for some time. Inquiry showed that the milk was lamentably deficient in fat. Since the mere pasteurisation of the milk and the addition of fat had been practised no cases of scurvy had arisen. Of the bottles of milk prepared at the Leith depôt only 15 per cent. were found to contain sterile milk. The bacteriology of milk accounted for the difficulty in inducing sterility. Roughly, three groups of organisms were present in milk—namely, (1) those belonging to the bacterium coli, proteus, and lactic acid group which were easily killed by short exposures to heat; (2) butyric acid organisms, anaerobic and spore-bearing, which caused rapid decomposition of milk with coagulation and gas formation and required a temperature of 212° maintained for an hour or one and a half hours in order to kill the spores; and (3) the bacillus subtilis or peptonising group which was the prime cause of summer diarrhœa. The spores of group 3 required exposure for two hours at 212° before they were killed. Pasteurisation did not alter the taste of the milk and inflicted as little damage on it as possible. The children fed on milk supplied by municipal depôts were regularly visited by lady health visitors and in Glasgow a lady practitioner had been appointed to give her undivided attention to this work. Weighing of the infant was of great value. Pasteurised milk did not agree with every infant. For young infants each meal was so small that the system was decidedly unpopular. The popular quantities were those found in bottles prepared for babies of two months of age. Amongst the infants fed on depôt milk during 1904 there were no deaths from diarrhœa, while among other hand-fed infants there were 36 deaths. In 1905 three infants fed on depôt milk died from diarrhœa, while of infants not fed on the milk 49 died from diarrhœa.—Dr. W. LESLIE MACKENZIE said that the state of milk separators which were being cleaned out gave a good idea of the dirty condition of milk, for they contained a deposit from a quarter to half an inch thick, consisting of mud, mucus, straw, &c. He drew attention to the great benefit shown in Paris, Dundee, and elsewhere by giving free

meals to suckling mothers. In Paris, of 401 mothers so fed less than 1 per cent. of the children suckled by them died, whilst the mortality in Edinburgh was from 18 to 20 per cent. —Dr. MALCOLM CAMPBELL said that he had fed 37 children for four months with milk obtained from the Leith depôt and among them there was only one death. The infants were weighed once a week and only five showed no increase during one week. After a time there was great rivalry amongst the mothers as to which child put on most weight.—Dr. J. STRACHAN (Dollar) said that his practice was to feed the infants on whole cow's milk without any change and his mortality was exceedingly small. He had no greater trouble with babies so fed than with breast-fed infants. He encouraged the use of one cow's milk, as it lessened the risk of mixing and so varying the composition. He had frequently met with babies starved on mixtures of milk and water who immediately began to thrive on pure cow's milk. He saw no reason for adding water to milk.

Dr. E. W. SCOTT CARMICHAEL read a paper on Inguinal Hernia in the Female. He said that this variety was of very common occurrence in females. Of 184 radical operations performed by him in children in this variety of hernia 23 were females and the relative frequency of this hernia did not seem to vary with age. There was good reason for concluding that this form of hernia was congenital in the female as well as in the male. The right side was most frequently the site of the affection. The contents of the sac in 28 cases were as follows: Fallopian tube and ovary in 17; Fallopian tube alone in five; small intestine in two; omentum in two; cæcum, ovary, and Fallopian tube in one; and vermiform appendix, ovary, and Fallopian tube in one. In two cases the sac was tuberculous. It was suggestive that the persistence of the canal of Nuck should be associated so frequently (over 30 per cent.) with malposition of the ovary and Fallopian tubes. The frequency of the presence of the ovary and Fallopian tube in the sac was most probably connected with the development of the inguinal ligament, while in the adult the presence of the ovary in the sac was due to mechanical effect. The ovary and tube did not lie free in the sac as a loop of intestine did, but were intimately associated with its wall, one broad ligament springing directly from the posterior aspect of the sac. A large percentage of inguinal herniæ in the female were bilateral and this seemed to be more marked the younger the subject. The younger the patient the more frequently were the ovary and tube found in the sac. In order to replace the ovary and tube it was necessary to divide freely the attachment to the sac. Tuberculous disease of the sac occurred in about 3 per cent. of herniæ in young subjects. Dr. Carmichael drew the following conclusions from his experience: (1) inguinal hernia in the female child occurred in about 10 per cent. of all cases; (2) it was associated in 30 per cent. of cases with a descent of the ovary and Fallopian tube; (3) the presence of these organs was often associated with malformation and defects of the genital system; and (4) the condition most likely to be confused with a hernia containing the ovary was the presence of a tuberculous nodule in the sac.

EDINBURGH OBSTETRICAL SOCIETY.—A meeting of this society was held on May 9th, Dr. J. W. Ballantyne, the President, being in the chair.—Professor Robert Jardine (Glasgow) read notes of two cases of Eclampsia. One of the patients died from suppression of urine caused by complete infarction of both kidneys; the other recovered after having had upwards of 200 fits. The first patient was in the seventh month of her seventh pregnancy and was admitted to the Glasgow Maternity Hospital after having had eight fits. A few days before swelling of the legs and face had been noticed and the patient had complained of severe headache. On admission she was unconscious and very restless; the urine became almost solid on boiling and contained granular tube casts. Blood to the amount of 12 ounces was drawn from the arm; two pints of saline solution, consisting of one drachm of sodium chloride and one drachm of sodium acetate in a pint of water, were transfused, the stomach was washed out, two ounces of salts were administered, and a hot pack was applied. She had three fits soon after admission and a drachm of bromide and half a drachm of chloral were given by the stomach tube. The hot pack was repeated and the skin acted well. The bowels acted four times with salts. Next day she passed urine freely, which contained 10 per 1000 albumin (Esbach) and 1½ per cent. of urea. On the following day she gave birth to a seven months fœtus. From midday there had been almost complete anuria; such urine as had been passed in the morning gave only 2 per 1000 albumin (Esbach). The day after the labour she had one fit. Two pints of the same saline solution were infused under the right breast and into the abdominal wall. Suppression of urine was evident and this was treated by cupping, pilocarpine injections, hot packs, &c. These caused profuse perspiration. Finally, after consultation, as the suppression was due to congestion, the right kidney was operated on, the capsule was incised and stripped off one side and slightly off the other, and an incision one-third of an inch deep was made into the kidney substance. The patient stood the operation well but her pulse failed and she died ten hours after the operation, about five and a half days after the commencement of the suppression. At the necropsy both kidneys were found to be enlarged and congested. The right kidney, which had been operated on, had a layer of blood clot between the capsule and the kidney substance varying in thickness up to a quarter of an inch. The cortex was found to be intensely congested with blood with changes of the nature of a widespread infarction. An almost identical case of complete suppression of urine was reported by Dr. W. S. A. Griffiths and Dr. W. P. Herringham in March in the *Journal of Pathology and Bacteriology*. This patient had suffered from chronic renal disease for years; there were no fits. Only ten ounces of urine were passed in nine days. Another case is reported in the same journal (1898, Vol. V., p. 197), where the suppression had lasted seven days without any uræmic symptoms. In the second of the two cases now described by Professor Jardine the patient was in the ninth month of her fourth pregnancy. She had had eight fits before admission to the Maternity Hospital. She had slight œdema of the legs and the urine showed a cloud of albumin, with some epithelial cells but no casts. Under chloroform, two pints of the same saline solution were infused under the right breast; the stomach was also washed out. She remained well for two and a half days, when a child was born naturally. Fits began two days after the delivery and continued until over 200 in all had occurred. She was treated by bleeding and transfusion twice; by injection of morphine given while the kidneys were acting freely; and by chloral and bromide. Lumbar puncture was also performed and half an ounce of cerebro-spinal fluid was withdrawn; it came away in drops but during a fit it ran quite freely; the fluid was quite clear and was found by culture and under the microscope to be quite sterile. Two hours later lumbar puncture was again performed and one-fifth of a grain of cocaine was injected. This seemed to quiet the patient but the fits did not diminish in frequency. Strychnine and digitalin were given to keep up the strength. The kidneys were extremely active all the time, a circumstance which favoured elimination of the poison.—Dr. A. H. Freeland Barbour read notes of a case of Broad Ligament Cyst with twisted pedicle and extravasation of blood into the cellular tissue along the left ovarian vein. He said that cases of hæmorrhage on the distal side of a twisted pedicle into the tumour itself were of common occurrence but cases of hæmorrhage on the proximal side were rare. The patient, who was unmarried and 40 years of age, was found to have a solid tumour pushing the uterus upwards and another in the lower region of the abdomen, apparently cystic. On opening the abdomen a cyst growing between the layers of the broad ligament was found with a half twist in its pedicle. On its removal it was noted that the broad ligament contained an extravasation of blood. A large fibroid tumour was found in the pouch of Douglas and was easily removed as its pedicle was only of the thickness of a pencil. Two litres of salt solution were left in the abdomen. The patient died from acute septic bronchitis supervening on bronchitis with emphysema. The necropsy showed that there was no pelvic peritonitis.—Dr. Barbour also read a note of a case of Abdominal Hysterectomy for Inversion of the Uterus, with fatty degeneration of the inverted portion.—Dr. E. W. Scott Carmichael read a paper on Hernia of the Uterine Adnexa.

MEDICO-LEGAL SOCIETY.—A meeting of this society was held on May 8th, Mr. Justice Walton, the President, being in the chair.—Dr. T. Claye Shaw read a paper on Insanity and Murder. He said that most murders were committed in moments of strong mental emotion; from the medical standpoint the prisoner's sanity or insanity was the most important element in the incident. In 1904 45 per cent. of the patients at the Criminal Lunatic Asylum

(Broadmoor) had been charged with murder; in that year 40 per cent. of those tried for murder were found to be insane at some period after arrest; in 1903 the percentage was 25·6. The present method of procedure in such murder cases was illogical, undignified, and incongruous. It might be assumed in practice that insanity and irresponsibility coexisted; the responsibility of patients which apparently was recognised in asylums was both specious and at times expensive. The rule in Jersey was to notify all lunatics to the authorities; it might be considered by us. Where the sanity of remanded prisoners was questioned by the medical officer he reported his suspicion to the Treasury which at once sends down a mental specialist for a consultation; at the subsequent trial a jury was sworn with the sole object of trying the issue of insanity, which being proved postponed the trial, for the prisoner was returned "insane on arraignment." Some prisoners resented the plea of insanity from fear either of being sent to Broadmoor or of losing the chance of a speedy acquittal; thus also might facts concerning collusion and agency be stifled. Dr. Shaw proposed that before the trial proper commenced sworn evidence should be taken as to the prisoner's sanity. The prison surgeon could testify in obvious cases; otherwise two official mental experts nominated by the Treasury would appear. Such evidence should be final but at the judge's discretion an inquiry might issue as to who did the deed and how it was done. In this way, it was affirmed, much unseemly medical dispute would be obviated at a later stage of the trial.—Dr. Henry Maudsley did not agree that the present procedure was at fault nor was it unfavourable to the prisoner. All medical reports were placed unreservedly in the hands of the defence. The proposed procedure would deprive the accused man of the right to adduce evidence in support of his sanity; this hardship, however, occasionally happened now even with minor criminal allegations and was in great contrast with the formalities necessary prior to the seclusion of a lunatic. No practical injustice was done; the jury leaned towards the prisoner's favour and might even decline to credit the medical evidence of sanity. 40 years ago evidence of insanity was likely to be received with suspicion and distrust both by judge and jury.—Dr. T. S. Clouston, from a long experience in Scotch criminal procedure, agreed in substance with the proposals. The experts appointed by the Treasury should have full access not only to the prisoner but to all the available circumstances of the crime and the persons connected with him and it. The judge should be allowed to call a medical assessor to his aid during the trial. It was anomalous that the Home Secretary acted upon unsworn testimony as to the patient's mental condition after a formal trial and conviction. The proposed Court of Criminal Appeal might review convictions where mental disorder had probably caused the prisoner's offensive conduct.—Dr. C. A. Mercier did not regard insanity and irresponsibility as convertible terms. Each was a matter of degree; many "irresponsible" persons deserved punishment, notably those whose criminal deeds were not influenced by their madness. The onus of deciding on the sanity of the accused would be shifted from the judge and jury to the two experts who themselves might disagree. The prisoner if found insane would be barred a verdict of acquittal. In this country trial by experts would never be allowed to replace trial by jury. There was no grievance to be remedied; if the judge thought that further evidence of insanity could be adduced he could inform the prison authorities of his opinion privately.—Dr. James Scott deemed the present procedure, which was not perfect, to be preferable to the proposed change. In some men the crime itself was the only symptom of insanity available. Mental experts examining the prisoner after the trial were not fettered by the rules which prohibited the extraction of self-incriminating testimony. Some patients at Broadmoor objected that, as they had not been found guilty of a misdeed, they should be discharged at once. It was not logical to restrict the proposed innovation to murderers.—Dr John Baker said that prisoners were discharged from Broadmoor at the discretion of the Home Office after petition by the prisoner or his friends and a report by the medical officer; there were no rules as to the length of detention, not even with puerperal offenders. He had noted that many who entered Broadmoor, when asked concerning their alleged criminal act pleaded amnesia; this state was often merely assumed but it was also true that it required a tremendous mental effort to reconstruct the details of a terrible act. Convicts were kept separated from the other patients; it was a very awkward position to be in when challenged by these latter as to why they should not be liberated, since nothing criminal had been proved against them.—Dr. Robert Jones favoured the retention of the present procedure; insanity was often a matter of opinion and could not be established even by post-mortem methods; the brief sittings usually possible in the case of prisoners made a definite conclusion very uncertain in many criminal inquiries.—Dr. T. B. Hyslop held that while the medical faculty had to determine questions of sanity, responsibility was beyond their scope. Trained lawyers excelled medical men in sifting details.—Dr. F. S. Toogood urged that many cases would have to be investigated immediately after the commission of the crime as where delirium tremens was a factor. At the Lewisham Infirmary he received many persons discharged as "cured" from the London County Asylums.—The learned President did not approve of the suggested interference with the Royal Prerogative as administered by the Home Secretary who was able to secure and to review all the evidence available, including such facts as had been excluded during the trial by legal technicalities; further he believed that juries, though at times acting illogically, seldom went very wrong. At present a prisoner might be tried both as to his fitness to plead and afterwards as to his guilt. If it was found that then and there he did not appreciate what was going on in court, his trial was postponed. Dr. Shaw had proposed that he should be dealt with after two "certificates on oath" of experts who might possibly fail to agree; this would not be trial, for no evidence would be laid before persons competent to decide the facts in issue. He feared that juries were sometimes biased by hearing the horrid details of a crime, so that they determined that someone must be punished, usually the prisoner before them. On the other hand, it was not always merciful to insanity, with the resulting prolonged seclusion at Broadmoor instead of alternatively an acquittal or a short sharp sentence; with some habitual inebriates such a detention after a crime was the best possible treatment of the disease.—Dr. R. J. Collie, Dr. S. R. Wells, and Mr. F. Danford Thomas also spoke.—In his reply Dr. Shaw said that it surprised him to hear that his suggested procedure would be unpopular with the public.

DERMATOLOGICAL SOCIETY OF LONDON.—The annual general meeting of this society was held on May 9th, Dr. J. J. Pringle being in the chair. The following officers were elected for the ensuing session:—Council: Dr. H. G. Adamson, Mr. Willmott H. Evans, Dr. T. Colcott Fox, Dr. James Galloway, Mr. Malcolm Morris, Dr. J. A. Ormerod, Dr. J. J. Pringle, Dr. Edward Stainer, Dr. J. Herbert Stowers, and Dr. Norman Walker. Honorary treasurer: Dr. H. Radcliffe Crocker. Honorary secretaries: Dr. Arthur Whitfield and Dr. E. G. Graham Little.—An ordinary meeting was afterwards held, when the following cases were exhibited.—Mr. T. E. A. Pearman, introduced by Dr. Galloway, showed a case of Unilateral Partial Œdema in a child, aged two and a half years. There was an œdematous condition of the left thigh and leg which caused this limb to be double the size of that on the right side. There were also slight œdema of the left cheek and a fulness of the bridge of the nose, which was also probably œdematous.—Dr. F. Parkes Weber said that he was familiar with this condition and with the literature on the subject. It was a congenital lymphatic œdema, sometimes occurring in segments of the body, as in this case, and sometimes symmetrically. The general prognosis was not bad. Meige had written on it in the Salpêtrière magazine and references were given in the *Presse Médicale* of the past year.—Dr. J. M. H. Macleod showed a boy, aged eight years, the subject of Adenoma Sebaceum of a very characteristic type. The face was covered with small very red papules with numerous telangiectases scattered over the surface. There were further characteristic nævoid fibromata upon the back and the forehead. The boy had had fits in early life and was now quite idiotic. There was a history of fits in the mother also but this was the only child out of four who had adenoma sebaceum.—Dr. S. E. Dore also showed a case of Adenoma Sebaceum in a man, aged 26 years, in whom the disease had not shown itself apparently until the age of 21 years. The eruption was much less marked than in the previous case and consisted only of pinpoint-sized pale papules for the most part, with a few very red larger papules upon the alæ of the nostrils. The patient's mental condition seemed normal. In addition to the papules above described he had

small nævoid fibromata upon the back and loins. The case was pronounced to be a somewhat abnormal one of adenoma sebaceum.—Dr. Whitfield showed a case of Linear Lichen Planus upon the right thigh and buttock of a girl, aged seven and half years, the disease having commenced four months previously. There were no lesions upon any other part of the body.—Dr. Pringle showed a case for diagnosis of a man who was covered with a superficial, very red, in places yellow, Eruption, slightly scaly, and not at all infiltrated. It had persisted for four years but there had not been any severe itching. The general health had not suffered. The blood had been examined and showed a slight degree of leucocytosis but no leucocythæmia.—Dr. Radcliffe Crocker considered the case to be a typical example of the disease which he had named xanthoerythrodermia perstans.—Mr. Evans showed a case of Actinomycosis of two and a half years' duration in a woman, aged about 40 years. She had a large amount of scarring in the neck and side of the face. The disease had apparently started with the tonsil. Much benefit had resulted from the administration thrice daily of 15-grain doses of potassium iodide. The characteristic fungus had been found in the discharge.—Dr. Adamson showed a case for diagnosis of a boy, aged seven years, with numerous pitted scars arranged in close juxtaposition upon the lower part of the abdomen over an area of about six inches. Within this area there were some hard papules as well which, in combination with the scars, suggested the diagnosis of a tuberculide. The condition had persisted for three years.—Dr. J. H. Sequiera showed a case for diagnosis of a young woman, aged 19 years, who had a Granulomatous Infiltration of the Nose and Cheek, Leucoplakia, and some large deeply Pigmented Scars upon the Right Thigh, the last lesions having existed from the age of two years. There were corneal nebulæ, but these were pronounced by an ophthalmic surgeon to be due to ulceration, not to interstitial keratitis, and there was no choroiditis. There were no marks of syphilis in the teeth. The case was shown as one in which it was difficult to discriminate between tuberculosis and syphilis and it was even suggested that both diseases might be present at the same time. The general opinion was that the case was an unusual one of congenital syphilis showing tertiary lesions.—Dr. Little showed a case of Erythema Keratodes in a middle-aged man who had suffered from this affection for at least three years. The sole of the right foot was occupied for its posterior half by a very much raised hard keratotic mass, with a wide pink areola surrounding it. The left foot remained unaffected. The condition had been painful but was relieved by treatment.

BRITISH GYNÆCOLOGICAL SOCIETY.—A meeting of this society was held on May 10th, Mr. F. Bowreman Jessett, the President, being in the chair.—Mrs. M. A. D. Scharlieb read a paper entitled "The Advantages of the Abdominal Route in Operations for Cancer of the Uterus." She said that a large percentage of women suffering from cancer of the uterus sought advice too late; many were not examined and a still larger number were believed to be free from the disease because the vaginal portion appeared to be healthy. If the operator was equally dexterous in operating by the vagina and by the abdomen the only probable advantage of the former was the diminution of post-operative shock. Operation through the abdomen secured: (1) a more fully exposed and convenient field of operation; (2) a better opportunity for breaking down adhesions without injury to the bladder or intestines; (3) more adequate examination and removal of pelvic glands, especially of those lying along the course of the iliac vessels, and about the bifurcation of the aorta; (4) less danger to the ureters, which might be examined and preserved uninjured while the cellular tissue was dissected away and the uterine vessels were tied on their outer side; (5) more trustworthy hæmostasis, the vessels being easily ligatured, which was a great improvement on the use of clamps, for the latter were always liable to bruise the tissues and had been known to cause necrosis and secondary hæmorrhage; (6) more easy separation of the bladder and rectum and less likelihood of injury to them; (7) the possibility of dividing the vagina low down, which was a great advantage when the disease had spread to the walls of this tube; and (8) economy of time in operating and the fact that cases which were inoperable by the vaginal route might be successfully completed by the abdominal one, more especially when the vagina was long, narrow, and rigid, as in elderly virgins and nulliparæ It was not to be expected, however, that these advantages would be conceded by those who had practised vaginal hysterectomy for the last 20 years and whose technique was almost perfect. All would deplore the appalling percentage of inoperable cases and gladly exchange an operability of 15 per cent. for one of 60 per cent. In comparing results it was not fair to make a comparison of the results of an operation reserved for the most advanced cases with those of an operation done in less advanced cases. The parametric tissue required removal and the plan of splitting the broad ligament had much to commend it, as the uterine artery and ureter could be reached from the wall of the pelvis. A list of 21 consecutive cases was given, of which 20 made an immediate recovery, while none had yet reached the five years' limit.—Mr. A. W. Mayo Robson said that at an early stage the supravaginal operation would yield good results. As soon as the disease had extended to the body of the uterus he was clearly convinced that it was better to operate by the abdominal route. It was necessary to teach patients that if they would seek advice early they might be cured of conditions which would otherwise prove fatal.—Mrs. Stanley Boyd said that if operators saw the case as soon as they wished any good operation would succeed.—Dr. J. A. Mansell Moullin said that the treatment of cases of cancer must largely depend upon the nature of the case and the bias of the operator.—Dr. Ferdinand A. Purcell advocated the vaginal route where the disease was in the cervix, but when it had extended to the body of the uterus he considered that the abdominal route was to be preferred and that panhysterectomy was the operation of selection.—Miss Louisa B. Aldrich-Blake said that she preferred the abdominal method in all cases and quoted from 34 cases where she had operated in this manner.—The President said that the situation of the growth ought to be taken into account in determining the nature of the operation. In cases of disease of the body he preferred the vaginal method.

SOCIETY FOR THE STUDY OF DISEASE IN CHILDREN.—A meeting of this society was held on May 4th and was devoted to the exhibition of pathological specimens, Mr. G. Pernet being in the chair.—Dr. E. Hobhouse (Brighton) showed a specimen of Congenital Pyloric Stenosis from an infant, aged six weeks. A day was selected for performing an operation but the child died the night before.—Dr. E. C. Mackay exhibited a specimen of Cerebrum with a Tumour situated in the anterior half of the right side which was probably glioma.—Dr. Edmund Cautley exhibited a Specimen of Congenital Laryngeal Stenosis from a child, aged five months, the epiglottis being folded on itself longitudinally so that the superior aperture was much narrowed.—Dr. G. A. Sutherland exhibited a skull affected with Congenital Syphilis and Hydrocephalus; it showed well-marked craniotabes, also the results of intracranial drainage for hydrocephalus. The skull had contracted until the bones were over-riding.—Mr. A. N. Leathem exhibited a specimen of the Stomach showing Ulceration round the Pylorus covered with Diphtheritic Membrane.—Dr. J. G. Emanuel (Birmingham) showed three specimens of Congenital Deformity of the Heart. In the first (lent by Dr. G. W. Powell) the aorta and pulmonary artery arose from a single ventricle, which was probably the right one. All the valves were normal. In the second (lent by Dr. O. J. Kauffmann) the aorta arose from the right ventricle and the pulmonary artery from the left and the foramen ovale was widely open; this specimen was from a boy, aged 11 years. In the third (lent by Dr. T. Stacey Wilson) the membranous part of the inter-ventricular septum was absent and the aorta arose as much from the right as from the left ventricle.—Dr. F. Langmead exhibited a specimen of Primary Sarcoma of the Lung removed from a girl, aged five years. The signs during life were those of pleural effusion. No growth was found elsewhere. He also exhibited a microscopical section from a girl, aged eight months, showing many Tubercle Bacilli from the base of a gastric ulcer.—Mr. Pernet exhibited microscopical sections of Nævi Cystepitheliomatosi Disseminati (lymphangioma tuberosum multiplex). This, he said, was a very rare disease consisting of numerous small tumours situated about the upper part of the front of the chest mainly but also on the back and face. The specimen was obtained from a woman, aged 25 years, in whom the growths were said to have appeared at the age of 16 years. The histological appearances were small cysts with colloid contents and strands and aggregations of cells

which Mr. Pernet considered were of epithelial origin. He also exhibited a drawing and photograph of Racial Pigmentation on the buttocks of a Siamese baby received from Mr. J. D. Gimlette of Kelantan, Siam.—Dr. G. Carpenter exhibited a Tuberculous Kidney removed by operation from a girl, aged ten years.—Mr. H. S. Clogg exhibited specimens of Fibro-Sarcoma and Angio-Sarcoma from the Parotid Gland.

LEEDS AND WEST RIDING MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on May 4th, Mr. Edward Ward being in the chair.—Dr. Adolph Bronner (Bradford) read a paper on the Modern Mastoid Operation. He said that the size and position of the mastoid cells and of the lateral sinus varied very much, and it was impossible to know how far the disease had spread before the parts were exposed. In most chronic cases it was necessary to perform the complete mastoid operation—namely, the opening up of all the mastoid cells, the attic and antrum, and the removal of the posterior wall of the osseous meatus. A large smooth-walled cavity should be formed consisting of the middle ear, attic, mastoid antrum and cells. The chisel should be used as little as possible, as there was danger of splitting the bone and damaging important parts and the concussion produced was dangerous to the brain, especially as there was always the possibility of an undiagnosed brain abscess. Suitable bone forceps and gouges were most useful and should be employed as much as possible. The electric burr was not now used so much as formerly. The treatment of the soft parts was important, as there was danger of stricture of the cutaneous meatus. Dr. Bronner generally adopted Stacke's or Ballance's method of making a flap from the posterior wall of the meatus. In cases where much bone had been removed skin-grafting was useful. In ordinary cases complete healing could be induced without grafting in from five to eight weeks. He never closed the posterior wound directly after the operation but left it open for a few days and at first dressed the wound daily. He thought it was an unsurgical proceeding to close up a foul septic wound and only to drain through the meatus. He used iodoform powder for a few days and then xeroform and plugged with aluminium gauze. Iodoform if used for any length of time caused excessive growth of granulation tissue. The application of peroxide of hydrogen was useful during the operation and also in the after-treatment.—Mr. Harold Upcott read a paper entitled "A Study of Epithelial Tumour of the Prostate," based on the examination of 33 specimens removed by operation. He said that in 27 of the specimens the enlargement was due to adenomatous or fibro-adenomatous growth; in five carcinoma was revealed by the microscope, and in only one was the change purely fibrous. The overgrowth of glandular tissue might give rise to one or more localised enucleable tumours, or, when arising from numerous foci, might cause a fairly symmetrical enlargement, affecting mainly the lower poles of the lateral lobes, its growth occurring chiefly in a forward direction. Of the cancerous prostates, two had been removed in fragments, two were but slightly enlarged and were shelled out whole, while the fifth was markedly enlarged. Malignant disease of the prostate could not be diagnosed in the majority of cases except by microscopical examination; to the naked eye the scirrhous cancer resembled the simple fibrous prostate, while a prostate affected with a more cellular growth might be indistinguishable from an adenomatous prostate.—Mr. M. A. Teale showed a case in which Landman's Wire Artificial Vitreous was Introduced into the Cavity of the Left Sclerotic four weeks ago.—Dr. A. S. F. Grünbaum (with Dr. O. C. Gruner) showed a specimen of Parotid Epithelioma invading the Spinal Canal; and (with Dr. R. D. Smedley) Spirochæta Pallida in the Ape.—Cases and specimens were also shown by Mr. G. Constable Hayes, Mr. W. H. Brown, Mr. E. Ward, Dr. Gruner, Mr. B. G. A. Moynihan, Mr. R. Lawford Knaggs, Mr. E. Robinson, Dr. T. Churton, Mr. J. F. Dobson, Mr. H. Littlewood, Dr. E. F. Trevelyan, and Dr. W. H. Maxwell Telling.

OTOLOGICAL SOCIETY OF THE UNITED KINGDOM.—A meeting of this society was held on May 7th, when a discussion on Fixation of the Stapes was opened by Dr. Urban Pritchard. He divided the forms of fixation of the stapes into the following: 1. Fibrous: (*a*) due to fibrous bands, chiefly in the pit of the stapes; and (*b*) due to a solid mass of organised and hardened granulation tissue. 2. Osseous: (*a*) from ossification of the annular ligament in the course of otosclerosis; and (*b*) from ossification of organised granulation tissue. Fixation of the stapes was, he said, in any form absolutely fatal to return of good hearing. There was no known treatment of any avail in osseous fixation and fibrous fixation by a solid mass of new tissue presented almost the same difficulties to treatment. The prognosis and treatment in fixation by fibrous bands were a little more hopeful. Something could be done by forcible inflation, by iodides, and by direct mechanical mobilisation.—Dr. Thomas Barr described the differential diagnosis of fixation of the stapes as it occurred: (1) from otosclerosis; (2) from adhesive middle-ear catarrh; and (3) from purulent processes in the middle ear. In simple uncomplicated cases due to otosclerosis differentiation during life was not attended with much difficulty. Differentiation from labyrinthine affections rested on tuning-fork tests. Information might be derived from making a window opening in the posterior superior quadrant of the tympanic membrane and he considered it important that more work should be done in securing anatomico-pathological confirmation of conclusions derived from clinical observations during life.—Mr. Richard Lake described cases of fixation under the headings of false or true. False he described as represented by (1) fixation of the malleus; (2) fixation of the malleus, with changes in the vestibule and the oval window; and (3) changes due to sclerosis of the mucous membrane in the vestibule—(*a*) as part of a general sclerosis of the air passages and (*b*) as the result of post-inflammatory trouble in this region. True fixation, he considered, as (1) the result of chronic suppuration, and (2) the result of rarefying osteitis of the labyrinthine capsule.—Dr. Albert Gray considered that fixation of the stapes was not, properly speaking, a pathological entity, as it might be the result of injury to the stapedio-vestibular articulation, of suppuration spreading into the joint from the tympanum, or from bony changes in the capsule of the labyrinth.—Mr. L. A. Lawrence considered that Gellé's test was not trustworthy in the diagnosis of ankylosis and suggested that paracusis was due to vibration and not to increased noise, instancing the fact that a patient with this symptom heard better when driving in a rubber-tyred hansom than in one with iron tyres.—Dr. J. Dundas Grant drew attention to the frequency of otosclerosis in anæmic young women and in osteo-arthritic patients.—Mr. Yearsley pleaded for uniformity of tuning-fork tests and their more general use in reporting cases.

PATHOLOGICAL SOCIETY OF MANCHESTER.—A laboratory meeting of this society was held on May 9th. The meeting was devoted to a demonstration of specimens and methods, of which the following were shown.—Dr. W. B. Anderton: Mixed Tumours.—Dr. E. M. Brockbank: Some Varieties of Red Blood Corpuscles.—Dr. J. Cameron: The Cytological Changes in the Cell Nuclei of Embryonic and Malignant Tissues.—Dr. A. Hill Griffith: Tuberculosis of the Iris.—Professor I. Walker Hall: Various.—Dr. Loveday: The Determination of the Opsonic Index.—Dr. Mair: Hodgkin's Disease simulating Pernicious Anæmia.—Dr. J. Dixon Mann: (1) Various Urinary Pigments with their Spectroscopic Reactions; and (2) Bilicyanin, a Disputed Fæcal Pigment.—Dr. S. Moritz: A New Urine Saccharimeter.—Dr. D. Orr and Dr. R. G. Rows: Various Lesions of the Central Nervous System.—Dr. D. Lloyd Roberts and Dr. W. E. Fothergill: Illustrations of Gynæcological Pathology.—Dr. Roberts: Primary Tracheal Diphtheria in an Adult.—Professor J. Lorrain Smith: A Peculiar Reaction in Lardaceous Tissues.—Dr. S. Powell White: (1) Lipoma in a Parrot; (2) Renal Carcinoma in a Rabbit; (3) Myeloid Sarcoma in a Drake; and (4) Carcinoma of the Thyroid in a Mouse.

HARVEIAN SOCIETY.—A clinical meeting of this society was held on May 10th at the Paddington Infirmary. Dr. Maurice F. Squire showed the following cases: 1. Hæmorrhage into the Right Crus Cerebri. The patient was a woman, aged 57 years, who fell down on getting out of bed and remembered nothing more until the next day. On admission to the infirmary there were complete paralysis of the muscles supplied by the right third nerve, paresis of the left face, arm, and leg, with deviation of the tongue to the left. Her condition improved so that she could partially open the right eye, but now movements of the left eye were impaired so that she could not move it beyond the middle line in either direction. The discs were normal. 2. Periostitis of the Humerus in a child, aged three years. A twin brother had a similar affection in one arm. 3. Infantile Paralysis in a child, aged two years, affecting the anterior tibial muscles of the right leg. 4. A case of Sprue in a man, aged 30 years. The patient was

a soldier who had been eight years in India where he had had "continued fever." The present illness started six months after return home in 1904 with vomiting and diarrhœa which had persisted on and off ever since. On admission in April, 1905, there were emaciation, denudation of epithelium of the tongue, and copious offensive light-coloured stools. (The case was discussed by Dr. W. H. Willcox who had found a milk diet beneficial in a similar case.) 5. A case of Scleroderma in a man, aged 43 years. The disease had commenced at the age of 14 years. There were patches of scleroderma on the shins, feet, thighs, and arms. 6. Carcinoma of Pylorus with secondary growth in the liver in a man, aged 45 years. 7. A case of Myopathic Dystrophy. 8. Dislocation of the Sternal End of the Left Clavicle in a man, aged 70 years, who was knocked down by a van, the wheel of which passed over his chest and fractured the second and third ribs on the left side as well.—Dr. Willcox showed a case of Rheumatoid Arthritis in a boy, aged ten years. Two years ago he complained of pain in the hands and feet and gradual thickening of the joints took place. There was now marked thickening on the inter-phalangeal joints in both hands with limitation of movement and also thickening of the interphalangeal joints of the toes. The hands and feet were always cold and turned blue in cold weather. The patient frequently suffered from chilblains.—The case was discussed by Dr. W. Winslow Hall and Dr. H. J. Macevoy.

SOUTH-WEST LONDON MEDICAL SOCIETY.—A meeting of this society was held on May 9th, Dr. M. Mackintosh, the President, being in the chair.—Dr. G. F. McCleary, the medical officer of health of the borough of Hampstead, read a paper on the Decline in the English Birth-rate and its Causes. He observed that the phenomenon of a declining birth-rate was to be seen in most civilised countries. In England the birth-rate had fallen from 36·3 in 1873 to 27·2 in 1905, and there was reason to think that the decline would continue. 10 per cent. of the decline was due to the decrease in illegitimacy, 20 per cent. to a decrease in the marriage-rate, and 70 per cent. to lessened fertility of married women. The latter was due in part to alterations in the age constitution of the population of married women at child-bearing ages, which now contained a greater proportion of older married women than in former years; to the use of artificial means to prevent conception; and possibly to an increase in involuntary sterility. It was not unreasonable to suspect that the function of maternity had to some extent been undergoing atrophy in the modern Englishwoman; for in recent years there had been (1) a decline in lactation; (2) an increased infantile mortality from premature birth; and (3) a decrease in the proportion of male births. It was important that the decline in the birth-rate should be studied by medical men, for it was not improbable that the profession might be called upon to make an authoritative statement on some aspects of the subject. The birth-rate was a matter of special concern to the people of this country, for our colonies, though vast in extent, were poor in population and the colonists of British blood were not fertile. The birth-rate in some of the Australian colonies and amongst the English Canadians was little higher than that of France and unless the British became more fertile it was doubtful whether the British empire would long remain British in anything but name.

Reviews and Notices of Books.

Wharton and Stillé's Medical Jurisprudence. Vol. II.: Poisons. By ROBERT AMORY, A.M., M.D., and ROBERT L. EMERSON, A.B., M.D. Fifth edition. Rochester, N.Y.: The Lawyers' Co-operative Publishing Co. 1905. Pp. 858.

IN presenting the fifth edition of this well-known work the knowledge of the action of poisons upon the living organism as demonstrated by the more recent literature published in Europe and America has made it necessary for the editors to make a complete change in the classification of the groups of poisons adopted in the former editions. The older writers on the subject of toxicology were inclined to classify poisons in groups indicated by similar symptoms following their administration. The editors consider that this method tends to confusion and consequently they have deemed it better to classify poisons more in accordance with their chemical and physical relations. An expert familiar with chemistry, when investigating the matters removed from the body of a person who is supposed to have met his death by poisoning, or in examining solid or liquid food, matters that might be so contaminated, naturally pursues a regular order of chemical analysis; his researches, therefore, would be more readily assisted by reference to a work arranged according to a chemical classification. This is perfectly correct if the book is intended mainly for laboratory work but for reference by a medical practitioner we believe that the old classification would prove more serviceable.

Much of the work of the former editors of previous editions has been retained in the present issue. The most important judicial cases, some of which were to be found in the text of the previous editions, have now been placed in the appendix. This is a good procedure, as the insertion of full accounts of such cases in the general body of the work is likely to interrupt the continuity of the description of the action of the poison. The portions of this edition which relate more especially to chemical research have been thoroughly revised and obsolete methods for the detection of poisons have been replaced by processes which have borne the test of the more recent advances in that science.

In reading the work it soon becomes apparent that the editors have spared no trouble to render it as complete as possible. From the large number of references in the footnotes it is evident that the compilation of the views of the various authorities on toxicology covers a wide field of research and that much patience and perseverance are required to sift the vast amount of literature that has accumulated during recent years. Attention is especially directed to the action of the more recent forms of poisons commonly used in the industrial arts, such as carbolic acid and wood alcohol, and a chapter has been introduced on ptomaine poisoning caused by food. For convenience of reference every chapter is divided into sections each of which is numbered, the numbers running consecutively from the commencement of the book. A very full and complete index is given, the various subjects being indicated by the numbers of the sections in which they will be found and not by those of the pages; the required information can therefore very readily be obtained. The whole work is an excellent one and deals most thoroughly with the subject of toxicology. It will be found especially useful by those practitioners who are engaged in medico-legal work either as coroners or as experts.

The Rheumatic Diseases. By J. ODERY SYMES, M.D. Lond., D.P.H., M.R.C.S. Eng., L.R.C.P. Lond., Assistant Physician and Bacteriologist, Bristol General Hospital. London and New York: John Lane, the Bodley Head. 1905. Pp. viii.–233. With 23 illustrations. Price 5*s.* net.

THIS volume, the first of a series entitled the Practitioner's Handbooks, deals with those affections of the joints to which the descriptive adjectives "rheumatic" and "rheumatoid" are commonly applied. In his introduction Dr. Symes points out that there is an increasing tendency to restrict the use of the word rheumatic to such conditions as are excited by a specific micro-organism—the diplococcus rheumaticus. At the same time until the causation of all those forms of arthritis associated with various acute infective processes has been clearly established he is of opinion that it is convenient to retain the common names for them, such as gonorrhœal rheumatism and scarlatinal rheumatism. Unfortunately, the term "rheumatic" has been also used to indicate conditions caused by exposure to cold whereby considerable confusion has resulted. Consequently the sooner

the term is restricted to conditions actually produced by the causal agent of rheumatic fever the better, although some pathologists do not yet admit the specific nature of the rheumatic diplococcus. Perhaps it would be less confusing to refer to the other conditions by such names as gonorrhœal arthritis and post-scarlatinal arthritis. Apart from this question of nomenclature we have little but praise for Dr. Symes's book which is eminently practical, especially in regard to the diagnosis and treatment of the conditions dealt with, and since it is written for the use of practitioners it should prove useful in these directions, as it is obviously the outcome of considerable personal experience.

The first chapter is devoted to acute rheumatism. The pathology and the bacteriology of the disease are briefly discussed, and Dr. Symes believes that the diplococcus found by Wassermann, Poynton and Paine, and other observers is the specific organism of this disease. He describes its cultural and staining characters, and states that the usual channels of invasion are the tonsils and the fauces. The clinical characters of the disease with the complications and sequelæ are carefully described, while the treatment is given in considerable detail. In regard to acute rheumatism, certain statements are made which we regard as far from proved, such as that on p. 9, that phthisis is not uncommonly associated with attacks of rheumatic fever. Again, no evidence is offered in support of the opinion expressed on p. 30, that there is probably a true rheumatic nephritis excited by the specific micrococcus.

The second chapter deals with rheumatism in childhood and its special features are carefully noticed, though the reference to chorea is exceedingly brief; moreover, Dr. Symes does not regard all cases of chorea as rheumatic, for he states that the symptoms of the chorea of rheumatism do not differ from those of chorea due to other causes.

Muscular rheumatism and chronic articular rheumatism are treated of in Chapter III., where the views of Stockman are given that these conditions are due to a fibrositis affecting the muscle spindles and the fibrous tissues of the muscles and joints. Dr. Symes is of opinion that some of the cases are due to the rheumatic diplococcus or its toxin but admits that gout, trauma, and chill may produce similar results.

The largest and best section of the work is devoted to acute and chronic rheumatoid arthritis. Dr. Symes very rightly insists on the importance of some primary toxic or septic focus from which the actual exciting agent enters the body and indicates the necessity of discovering this focus as an aid to treatment. He is of opinion that, at any rate, some of the cases are due to a modified or non-virulent form of the coccus of acute rheumatism. A short chapter follows on the so-called gonorrhœal rheumatism in which the evidence that this condition is due to a general systemic infection by the gonococcus is put forward. The account given of the clinical features of the disease and the treatment is very good. The last chapter deals with scarlatinal rheumatism and its differentiation from scarlatinal pyæmia and true rheumatic fever is given.

The book is well produced and is illustrated by some excellent reproductions from photographs.

Les Noms Arabes dans Sérapion "Liber de Simplici Medicina." (Arabic Names in the Book of Simples of Serapion the Younger.) Par le Dr. PIERRE GUIGUES, Professor à la Faculté Française de Médecine et de Pharmacie de Beyrouth. Paris: Imprimérie Nationale. 1905.

Dr. Pierre Guigues of Beyrouth has united in a single pamphlet the interesting and learned articles which he published last year in the *Journal Asiatique* of Paris upon Arabic names in the Latin version ("Liber de Simplici Medicina") of Serapion. His work really is a restitution, or identification, of these titles as they are found mutilated and erroneously rendered in the translation of Serapion's "Book of Simples" by Simon of Genoa and Abraham the Jew, a copy of which was printed at Venice, in Gothic characters, in 1497, together with a Breviarium of an older Serapion who flourished in the ninth century. The Serapion the Younger, who was author of the "De Simplici Medicina," Sprengel places in the tenth century, whilst to M. Leclerc, in his "Histoire de la Médecine," assigns to him as late a date as the thirteenth. But an Arabic writer, Ib-nal-Baïtâr, cites Serapion in a book written between 1220 and 1248 and therefore Serapion must have flourished in the twelfth century. It is well known to students of medical history how by means of the College of Salerno the medical works of the Arabs, mostly themselves derived from the ancient Greek medical classics, took a preponderating place in the medical learning of the later middle ages. Saladin of Ascoli mentions six treatises as all-important for every apothecary, almost the whole of which are either Arabic works or compiled from Arabic sources. One of these books was the "Liber de Simplici Medicina" of Serapion the Younger and in consulting this work in his researches upon Arabic medicine Dr. Guigues found it extremely difficult without prolonged study to ascertain the Saracenic and modern names for the drugs mentioned, though the titles were certainly of Arabic origin. M. Leclerc had noticed the barbarity of the renderings and assigned it to Serapion having been translated from Arabic into Hebrew and then into Latin, but the Arabic of Serapion enters largely into the "Dictionary of Materia Medica" of Matthæus Sylvaticus, physician to King Robert of Sicily, and there the rendering of the Arabic names surpasses in confusion all the errors of the "De Simplici Medicina."

Serapion's work consists chiefly of the Arabic titles for substances with a commentary upon each derived as much from Galen and Dioscorides as from Arabic or Persian lore; where the words rendered in Latin are derived from the Greek Dr. Guigues passes them over, endeavouring only to provide the Arabic name for which the Latin word was intended. A few instances of these will be of interest and illustrate the erudition and acumen of Dr. Guigues. Alchilelmelich thus conceals the trifolium Indicum: melilotus officinalis, which was known as "the royal crown" (Arabic iklyl al-malik). "Athin" is Arabic aqtin.; Phaseolus mungo L., a not very palatable vegetable, hence an Arabic proverb speaking of it in its vulgar name of Mach. "Mach is better than nothing." Under the name of Katjang-idja it is in India alleged to be a remedy for beri-beri. Basialrahagi, Dr. Guigues thinks, is a polygonum, but its name is derived from Arabic 'aç·l ar-ra'y, "shepherds cane." Athfar Atheb is Arabic azfar at-tyb, "scented nails," an allusion to the shape and scent, when burnt, of a shell (strombus lentiginosus). Ceufud turned out to be qounfuod, the hedgehog, whilst chenedhalbebi is traced to qinna and khalbani, the latter being Greek γαλβάνη, but this word may be of Semitic ancestry from Hebrew chelbenah. One of the most difficult names was Demalachochen, which Dr. Guigues detected to be dam al akhouaïn. "blood of two brothers," an old Arabic title for "dragon's blood," a resin from a calamus. Dioscorides gives to a plant the name of cinnabaris, carefully distinguishing its red resinous product from minium—sulphuret of mercury. Hager Alyeudi was simple to decipher as hajar al-yahoûd, "the Jew's stone," a marine fossil, "cedaris glandiferus," common in the Lebanon. These specimens of Dr. Guigues's treatise afford an idea of the character of his work which could only be achieved by means of an intimate knowledge of the names of animals, plants, and minerals in the Arabic of the Saracenic era. He gives the meaning, except in a few cases where he admits that the derivation has hitherto escaped him,[1] of 544 of the Arabic

[1] Dr. Guigues considers Lasahaten to be the unknown Νάσκαφθον of Dioscorides.

Latinised forms in the "De Simplici Medicina." Naturally the information is almost as valuable to botanists as to medical scholars, whilst folklore and superstitions of various kinds are frequently illustrated. The book concludes with an excellent bibliography and indices of modern names and all the Arabic words enumerated in the work.

JOURNALS AND MAGAZINES.

The Edinburgh Medical Journal.—In the May number Dr. P. McBride discusses Hysterical Deafness, pointing out the difficulty of diagnosis in this condition—a difficulty only cleared up, indeed, when the affection disappears. Mr. John S. McArdle writes of the Radical Cure of Inguinal Hernia, noting the importance of leaving the inner surface of the abdominal wall perfectly smooth and of bringing down the oblique and transversalis muscles to Poupart's ligament as well as the conjoined tendon; and Mr. B. G. A. Moynihan records some instances of violation of the so-called "Law of Courvoisier"—viz., that in calculous obstruction of the common bile-duct the gall-bladder is not enlarged, whereas in obstruction due to other causes enlargement is the rule. Dr. Purves Stewart contributes an interesting paper on the Clinical Significance of the Cerebro-spinal Fluid, especially in the early diagnosis of tabes dorsalis and general paralysis.

The Scottish Medical and Surgical Journal.—Perhaps the most interesting paper in the May number of this journal is that by Dr. J. Eason on Paroxysmal Hæmoglobinuria. In it he supplements his former observations, pointing to the interaction of two bodies—a complement and an intermediary body—in producing hæmolysis in this affection, and brings forward evidence that the action of cold is necessary for the attachment of the intermediary body to the blood corpuscles. Dr. A. A. Scot Skirving contributes an article on Oral Syphilis, in which the importance of prohibiting smoking in cases of such disease is insisted upon and a plea made for the more frequent use of the inunction method of administering mercury. Dr. A. Dingwall Fordyce writes of the suprarenal glands in various affections and some notes on gynæcological matters are contained in a valedictory address delivered by Dr. N. T. Brewis to the Edinburgh Obstetrical Society.

The Medical Chronicle.—The May number opens with an interesting paper by Professor W. Osler on Angina Pectoris as an Early Symptom of Aneurysm of the Aorta, suggesting that this symptom depends on structural changes in the walls of the vessel. Dr. Arnold W. W. Lea points out the possibility and also the utility of drainage of the peritoneum through the vagina in young children and Dr. R. T. Williamson writes on the treatment of diabetes mellitus, advocating aspirin as a useful remedy in mild cases and giving some hints as to diet.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

AN extraordinary Comitia was held on May 10th, Sir RICHARD DOUGLAS POWELL, Bart., K.C.V.O., the President, being in the chair.

The following Members who had been elected to the Fellowship at the last meeting were admitted as Fellows:—Dr. Samuel Walton Wheaton, Dr. Frederick William Burton-Fanning, Dr. John Hill Abram, Dr. George Henkell Drummond Robinson, Dr. Richard Tanner Hewlett, Dr. Ernest Graham Gordon Little, Dr. Charles Richard Box, Dr. Maurice Craig, Dr. James Purves Stewart, Dr. Thomas Jeeves Horder, Dr. James Hugh Thursfield, and Dr. Edward Farquhar Buzzard.

The PRESIDENT announced that he had nominated Sir William S. Church and Dr. G. A. Heron as representatives of the College on the general committee of the Second International Congress on School Hygiene to be held in London from August 5th to 10th, 1907.

A communication was received from Mr. Reginald Blunt, asking permission to photograph the portrait of Dr. Messenger Monsey, in possession of the College, to illustrate his forthcoming book on "Chelsea" which deals particularly with the physicians of the Royal Hospital.—The request was granted.

A report was read from Dr. Frederick T. Roberts, representative of the College on the court of governors of the University of Sheffield, on a meeting of the court which had recently been held.

Dr. Norman Moore was re-elected the representative of the College in the General Council of Medical Education and Registration. The PRESIDENT thanked Dr. Moore for the services which he had rendered to the College in acting as its representative and Dr. MOORE replied, thanking the College for his re-election.

A report, dated April 24th, was received from the adjudicators of the Weber-Parkes prize for 1906, stating that no essays had been received.

A report, dated Feb. 12th, was considered for the second time from the committee appointed to prepare a revised edition of the College by-laws; the additions and alterations therein proposed were finally enacted.

The PRESIDENT then dissolved the Comitia.

Looking Back.

FROM

THE LANCET, *SATURDAY*, May 17th, 1828.

SPONTANEOUS COMBUSTION.

In the *Journal de Pharmacie*, there is a case recorded by Professor Rudolphi, of a man who suddenly felt a pain in the arm, similar to that produced by the blow of a stick, and immediately perceived in the same spot a small flame, which burnt his shirt. There is also the case of a girl mentioned, seventeen years of age, in whom a kind of blueish sulphureous flame appeared around the finger; the flame could not be extinguished by water; it burnt the clothing brought into contact with it, but could only be distinguished in the dark. The best electrometers placed in contact with the patient, presented no sign of electricity.

Nothing can be more empirical, than making disease subservient to remedies; but though truly unscientific, we every day see men who should know better, degrade themselves by following this line of practice. For example: one oculist will bleed, &c., in all cases of ophthalmia; form all artificial pupils on the principle of Gibson, and, in every case of cataract, operate with a needle; on the contrary, another man will use solutions, and ointments, as the only remedies for conjunctival ophthalmia; make pupils as recommended by Cheselden, and even attempt to extract membranous cataracts. In like manner, one surgeon is so devoted to the double circular incision, that he performs no other, though his coadjutor, in the same hospital, is bigoted to the double flap operation, and never amputates but after this manner. But, the unprejudiced practitioner will look to the nature of the case, and adjust means accordingly; for only by thus acting can he be of public utility, and honestly beneficial to himself.[1]

In a trial which took place in the county of Suffolk in 1808, Pizzy, a farrier, and another person, were indicted for administering medicines with an intent to produce abortion. It was proved on the trial, that the medicines failed in effecting the intended object, and that it was at length accomplished by mechanical violence. In consequence of the defective state of the law, which has made no provision in respect to manual operations, the criminal was tried for giving medicine which had no effect, whilst the means by which the crime had actually been perpetrated, were only admitted in evidence as proof of the intention with which the medicines were given![2]

[1] Foot-note to an article headed "Amputations," by Dr. George Bushe.

[2] Foot-note to a discussion at a meeting of the London Medical Society on the use of spurred rye and of digitalis.

THE LANCET.

LONDON: SATURDAY, MAY 19, 1906.

The Interim Report of the Antityphoid Inoculation Committee.

THE committee appointed by the Army Council to investigate the practical, prophylactic and therapeutic value of current methods of immunisation against typhoid fever has held six meetings since its inauguration on May 11th, 1904. Surgeon-General A. H. KEOGH opened the original proceedings on behalf of the Army Council, informing the members of the committee that it was not intended that they should undertake such investigation, "but for this purpose competent officers of the Royal Army Medical Corps should be detailed, the lines of their researches being laid down for them and their work being supervised by the committee." The committee, which consists of Dr. W. BULLOCH, Dr. F. FOORD CAIGER, Dr. JAMES GALLOWAY, Major W. B. LEISHMAN, R.A.M.C., Dr. R. BRUCE LOW, Dr. ALLAN MACFADYEN, and Professor A. E. WRIGHT, with Dr. C. J. MARTIN as chairman, proceeded to its work upon the lines suggested by Surgeon-General KEOGH, and has now issued an interim report setting forth the opinions arrived at and suggesting propositions as to further investigation. The object of this report is to satisfy the Army Council of the urgent need of this further investigation and of the necessity of providing the requisite machinery for carrying it out.

In this report the committee sets forth a list of all the documents bearing on the subject, containing all the available data relating to antityphoid inoculation; these consist of 16 reports, letters, original papers, and memoranda placed at the disposal of the committee by the Army Medical Department. The committee states that, having carefully considered the whole of the statistical material, it is satisfied that "the records which are available up to date furnish proof that the practice of antityphoid inoculations in the army has resulted in a substantial reduction in the incidence and death-rate from enteric fever among the inoculated." The committee further states that the statistical records support the scientific observations that the protective substances which are developed in the human organism after antityphoid inoculation are identical with those developed in the course of an attack of typhoid fever, and that animals can be rendered resistant to typhoid fever by the same process of inoculation as that used upon man. As a consequence of these conclusions the committee recommends that the practice of voluntary inoculation against typhoid fever in the army should be resumed. It also strongly urges the Army Council to provide facilities for the execution of the following investigations: First, investigations with the present form of vaccine (standardised typhoid cultures sterilised by heating to 60° C.) upon troops leaving for foreign service, with a view to determine the protective value of varying doses of vaccine, the number of doses to be administered, and also the duration of the protection conferred; secondly, investigations upon animals in order to improve the vaccine if possible; and thirdly, an investigation of the development of protective substances in the blood of patients suffering from, and convalescent from, typhoid fever. The committee recommends that these investigations should commence forthwith, and in its report proceeds to outline the necessary arrangements, which comprise (1) the inoculation under careful supervision, at least one month prior to embarkation, of volunteers from each regiment proceeding from this country to India, (2) the attachment of a junior officer of the Royal Army Medical Corps to each regiment to proceed abroad and to remain with it for at least three years, acting under the directions of the committee as regards the inoculations and the collection of statistics in connexion with them, and (3) the collection by the headquarters of the Army Medical Department of statistics relating to inoculations which may be carried out in addition to those on the above-mentioned selected units. It is further pointed out that the difficulties of the investigations proposed will, in the first instance at any rate, necessitate the active supervision of experts who have made a special study of this kind of research, and that owing to the scientific laboratories of the Royal Army Medical College being at present incomplete the vaccine should be derived from a source to be approved by the committee.

There is a minority report attached to the main report signed by Dr. BULLOCH and Professor WRIGHT, who, while agreeing with the conclusions and general recommendations of their colleagues, are of opinion that the temporary calling in of experts to the assistance of the army medical officers would fail to meet the requirements of the case. They suggest that a "*quasi*-permanent organisation" is necessary in order that the vaccine and the details of the inoculations may be continually modified in the light of information gained by research. We cannot but feel that this difference of opinion among the members of the committee is regrettable, as the distinction between temporary expert assistance, as suggested by the majority report, and "a *quasi*-permanent organisation" does not seem to be a very great one, especially when we are told that the proposed organisation should consist of "medical officers working in association with civilian experts." We think that Dr. BULLOCH and Professor WRIGHT might have agreed *in toto* with their colleagues, though we are certain that they considered the claims of science would be better served by their differing. With the conclusions of the committee and its recommendations we most cordially agree. A study of the statistics available in 1904 will show that the incidence of typhoid fever among the inoculated was reduced to at least one-half of that among those not inoculated, and a similar reduction was observed in the case mortality of those contracting the disease after inoculation compared with that among the non-inoculated. When the enormous losses which this disease causes in the army both in war and peace are taken into consideration—e.g., the deaths in India alone amount to half a battalion a year—the importance of

the investigation of prophylactic measures becomes at once apparent, and we may express the hope that the Army Council will put the recommendations of the committee into effect as soon as the necessary organisation can be brought into being.

The Scottish Universities and Autonomy.

WE published in THE LANCET of May 5th, p. 1266, an outline of the changes proposed to be made in the curriculum for the degree in medicine of the University of Edinburgh. The proposed changes had been accepted by the University Court and by the Senatus and were submitted to the meeting of the General Council of the University held on May 2nd, together with certain additions and amendments suggested by the business committee of the Council. At the meeting both the proposed changes and the suggested amendments were unanimously adopted, after being supported in the main by the Dean of the Faculty of Medicine, Professor D. J. CUNNINGHAM, and seconded by Sir JAMES RUSSELL, the Inspector of Anatomy for Scotland and an ex-Lord Provost of the city of Edinburgh. A letter was also read from the Principal of the University, Sir WILLIAM TURNER, in which no objection was taken to the amendments suggested by the business committee while approval of the claim for autonomy was specified. It might be thought that where there was practical unanimity on the part of the University Court, the Senatus, and the General Council of the University as to the desirability of making changes not of a revolutionary character in the medical curriculum there would be no difficulty in giving effect to such a unanimous opinion. Such, however, is far from being the case. All such proposals, emanating from any one of the Scottish Universities, have to be submitted to the other three, and it is competent for any one of them to notify dissent and to lodge a representation to that effect with the Privy Council, the Sovereign and the Privy Council being the court to which all proposed alterations have to be submitted. Even supposing that there is no difficulty with the Privy Council, the proposals have to be laid before both Houses of Parliament during 12 weeks to give an opportunity to Parliament to present an address praying the Sovereign to withhold assent. That such procedure is at its best slow and cumbrous was the opinion expressed by the business committee and endorsed by the General Council. It is even worse than this, for experience has shown that opposition from the sister universities may lead to almost indefinite delay owing to the desirability of mollifying the opposing universities and thus endeavouring to remove opposition. It may be assumed that the intentions of the framers of the ordinances, which begin to chafe the hands of the University of Edinburgh, were excellent and that the ordinances were suitable for the time when they were drawn. It may even be suggested that the fetters imposed by the ordinances have in the past been hugged with considerable self-complacence by all the universities, but it is worthy of special note now that at the recent meeting of the Edinburgh General Council the University of Edinburgh seems to have suddenly awakened from a condition of sopor which was thought, even by some of her well-wishers, to be one of coma and that, if she has not initiated, she apparently endorses a demand for greater freedom and for a large measure of autonomy.

When it is understood that the University had to face such a procedure as we have indicated it is not perhaps to be wondered at that it was difficult to stir her up to make the necessary effort to reform anything. That she should now seek emancipation from her bondage indicates, we venture to believe, that she feels the spirit of dissatisfaction which has been steadily growing with regard to education and that she perceives that she can only adapt herself readily to changing times and circumstances by obtaining practical autonomy. How great is the present bondage of the Scottish Universities will be appreciated when it is known that in the Faculty of Medicine, for instance, the University cannot divide a subject taught from one chair and have two professors instead of one, cannot alter the times at which students may sit for examination, or modify the grouping of the subjects on which they are examined, without a new ordinance which may have to struggle against the resistance of a sister university which either does not consider the proposed changes desirable or objects to advances which she is not in a position to adopt. It is a curious result of legislation to find it obstructing advance in one university because the other universities may not be in a position to advance equally. Such legislation was useful and at one time probably necessary to maintain the standard of Scottish University degrees, and the law framers cannot be greatly blamed for not foreseeing that the problems before the universities in the near future would be their adaptation and extension to meet the requirements of advances in knowledge rather than the exercise of a mutual check to prevent degradation or underselling. That the Scottish Universities now should be granted as great a measure of autonomy as has been given to the newer English Universities will not be seriously questioned, and it is probable that Parliament will be ready to grant a Bill for what is practically a dissolution of partnership, care being taken that examination standards are maintained. Such freedom would greatly favour the development of the individual Universities and would introduce an influence that would attract benefactions for the extension of teaching and of research. We are necessarily interested in all centres of medical instruction and in all measures having for their object the improvement of medical education and the advancement of medical knowledge, and now that Edinburgh has through her General Council declared her need of greater freedom it is hardly credible that she will not be strenuously backed by the other Scottish Universities and that she will not be supported in her demand by the medical and the lay press.

The Licence of Quackery and Superstition.

THE protracted inquiry into the death of Major JOHN NICHOLAS WHYTE which was held by Mr. TROUTBECK, the coroner for Westminster, during the early part of this month has been reported in full in many newspapers and with such details as have yet been published many of our readers are no doubt familiar. As the inquiry has been followed

by a verdict of manslaughter, and as the accused is at the present moment under remand at the Westminster police court, we shall, of course, not be expected to comment upon any of the extraordinary and terrible features of the story. The prisoner is a qualified medical man, whose name remains upon the official roll of the profession but who has stated in the coroner's court that he has left the ranks of medicine to become a "Christian Scientist," and the question of his guilt or innocence must undoubtedly be complicated by the fact that he had once earned proper medical and surgical diplomas and had been engaged in the exercise of his calling in several responsible situations. Whether Major WHYTE actually died because of the treatment received at the hands of the "Christian Scientists" (perhaps we should say because of the neglect of treatment prescribed by that sect) will be decided by a court of law, and all the circumstances point to the legal investigation being of deep interest to the medical profession. They should be of corresponding interest to the public, for if Major WHYTE'S death is found to be traceable to "Christian Science" the public might well be asked to notice the dangerous height to which distrust of the medical profession has been allowed to grow in this presumably educated country. This distrust has been implanted in the breast of the public by the many onslaughts which scientific medicine sustains at the hands not only of the purely venal quack but of our presumably educated classes. Major WHYTE, having a fractured spine, was snatched back from the gates of death by prompt surgical interference—the "Christian Scientists" themselves would probably allow this, for they are understood not to attempt the treatment of fractures, against the pain and deformity of which Mrs. EDDY'S ritual is inefficacious. An operation of a dangerous and difficult character was successfully performed upon the unfortunate man; it resulted in the immediate saving of life and the opening up of a prospect of considerable prolongation of that life in circumstances which would not necessarily be unendurable. Major WHYTE, with whose desire to try all and every means that could restore him to health and vigour every one of us must sympathise without reservation of sort or kind, believed that "Christian Science" held out to him the opportunity that he sought. So he deserted medical procedure for the tenets of Mrs. EDDY and died in circumstances of the most appalling misery. The law will now decide how far that death, despite the unremitting attendance of his body-servant, was due to neglect of medical precautions by those who had taken the responsibility of treating his case. Such a story, whatever the outcome of legal procedure may turn out, would not be possible were it not for the tolerant attitude of men of education and authority, and of a large section of the press, towards the claims of quackery and towards the avowed opponents of medical science in all shapes. "Christian Science" is known to be a fad among rich and well-born people; a Member of Parliament has recently from his place in the House accused medical men of being pecuniarily interested in the death of their patients; men of a certain amount of education and position, as well as a few literary men and humorists, are found ready to stigmatise those who are engaged in the work of medical research as bloody-minded torturers; and the proprietors of certain newspapers receive with both hands money for the insertion of the grossest inventions of the charlatan. These are the things which have undermined the public trust in medicine; these are the things which have accustomed the wits of persons, otherwise sane, to believe that the purchased prayers of an ESTHER MARIA GRANT, uttered in deference to the expositions of a MARY BAKER G. EDDY, will work therapeutic marvels.

Annotations.

"Ne quid nimis."

THE ANNUAL DINNER OF THE PHARMACEUTICAL SOCIETY: DR. DONALD MACALISTER ON THE POISONS AND PHARMACY BILL.

IT might have been safely anticipated that there would be one subject the claims of which for discussion would be paramount in the speeches at the annual dinner of the Pharmaceutical Society, held in the Whitehall Rooms of the Hôtel Métropole on Tuesday last, May 15th. We refer to the acceptance by the House of Lords on May 11th of Lord Ebury's amendment to the Poisons and Pharmacy Bill, which legalises the use of chemists' titles by limited liability trading companies. After the usual loyal toasts had been honoured the President of the society, Mr. Alderman R. A. Robinson, J.P., L.C.C., in giving from the chair the toast of "The Houses of Parliament," said that he was sure that the peers who voted for the amendment of Lord Ebury did not fully understand the import of it. (Our readers will find in a full report of the debate in question at p. 1441 of this issue of THE LANCET the wording of Lord Ebury's amendment.) The decision come to by the House of Lords, which permitted persons who had passed no examinations to act as chemists, pharmacists, and druggists, did not merely concern the use of these titles. Their lordships' action meant that in future a company of unqualified persons would not be obliged to make up medical prescriptions according to the British Pharmacopœia. Such a company need not keep strong poisons, in accordance with the poisons regulations which are incumbent upon registered chemists. The net result of the amendment was thus to take the trading companies out of the regulations which were framed for, and enforced upon, pharmaceutical chemists for the safety of the public and in the interest of public health. Mr. Robinson trusted that the matter would be put right either in the House of Lords, while there was still time, or in the House of Commons later. In proposing the toast of "The Pharmaceutical Society" Dr. MacAlister, the President of the General Medical Council, made an important speech upon a subject that must especially interest him. He remarked that, like the General Medical Council, the Pharmaceutical Society is charged with a double duty, that of the education and the registration of pharmaceutical chemists. Registration and its privileges was the reward offered by the legislature to those who, by long and careful education, have qualified themselves, and after strict examination have proved themselves worthy to receive it. Registration was a personal recognition of personal fitness, and the so-called privileges of registration are merely the acknowledgment by the State that skilled work should be intrusted only to skilled hands and heads. So long as these privileges are open to any citizen who is found fit to be qualified it was, he considered, a gross terminological inexactitude to speak of them as being the monopoly of a class. It would be unjust and dangerous to the public for the State to allow

an unintentional and unforeseen defect of the law to frustrate its purpose. The State meant by the principle of registration to hold out inducements towards personal qualification; it imposed limitations on the baneful activity of the unqualified in order to secure a constant supply of persons willing and also thoroughly able to serve the public as pharmacists, as dentists, or as medical practitioners. An ingenious application, however, of the law of companies, originally enacted for financial purposes only, has in certain hands gone far to nullify the inducements offered by the State and to break down the limitations protecting properly qualified practice. The General Medical Council, he added, had for years sought to persuade the legislature to restore to the public the safeguards that were meant for its protection and he believed that Parliament must sooner or later be brought to see the evil which must arise from the actions of unqualified persons exempting themselves by incorporation in greater or less degree from the reasonable restrictions of legislation. It was incumbent on Parliament to find a remedy for the present state of affairs. The plea for a reform in the law was surely unanswerable, for the law now lays down that what is illegal for one person becomes legal when seven men join to do it in a company! Mr. Tweedy, the President of the Royal College of Surgeons of England, replying to the toast of "The Medical Profession," said that he hoped that the Pharmacy Bill when it came before the House of Commons, where it would be discussed upon its merits, would finally be successfully passed, and all the medical profession will agree with him in this sentiment. After a short programme of music the proceedings at a very interesting dinner terminated.

THE MEDICAL DEFENCE UNION.

WE have received a copy of the "Annual Report and Statement of Accounts for the year 1905 of the Medical Defence Union." This forms the twentieth report since the incorporation of the society and the members may be congratulated upon the attaining by the union of its majority. To mark this year the council decided to hold the annual general meeting at Birmingham, a wise conclusion which will be sure to give satisfaction to those members resident in the Midlands. The report once more proves the great value of such a society. No member of the medical profession, be he consultant or general practitioner, is secure from attack by ill-disposed individuals. In addition, such attacks are usually made by persons totally without means, the main object apparently being to attempt to levy blackmail. Mr. W. E. Hempson (solicitor to the union) draws especial attention to this point in his exceedingly able and interesting report. Speaking of such cases, he says: "It is always to me, even now, with the experience I have had in the light of the union's work, a mystery as to how on earth people of the class I have indicated are enabled to get actions undertaken for them. The grounds of action are more often than not of the flimsiest character possible, though in many instances the patient, in his ignorance only, believes he has a grievance. What surprises me is that he can get his action taken up for him by a legal adviser who is prepared to conduct the proceedings on the footing of 'no cure no pay,' but that it is possible is sufficiently demonstrated by the records which I have given." We can cordially recommend to our readers a perusal of this report. The numerous cases cited by Mr. Hempson or noted in the schedule of cases selected from the minute book will at once demonstrate the necessity which we have so frequently insisted on of every member of the medical profession joining one of the defence societies. The cases quoted, however, by no means represent the total amount of work done but only a proportion of such. Were the council to publish details of all cases dealt with by the executive the report would require to be extended beyond reasonable limits. The secretary (Dr. A. G. Bateman) daily gives verbal advice to members calling at the office The main object of the union is to aid the members speedily and efficiently and therefore the secretary and the solicitor are empowered to act when necessary without waiting for a meeting either of the council or of the executive committee, reporting, of course, to the meeting following such action. By this method no delay in active intervention on behalf of a member threatened with an action is caused, and by such prompt intervention many a case is crushed at its initiation which if delay had been permitted would have gained power and strength and necessitated heavy expenditure of both time and money. It is this speedy action which is of such immense advantage to members of the union. If a practitioner is not a member such specially skilled and prompt advice is most difficult to obtain and the costs mount up at an amazing pace, and, as we have above pointed out, owing to the social and pecuniary position of those bringing such actions such costs can rarely be refunded. During the year 1905 188 cases were referred to the solicitor, 65 of which related to the suppression of libels and slanders published of, or concerning, members of the union; 22 to the defence of members in actions threatened or prosecuted and in which damages were claimed for alleged malpraxis; 19 were associated with the prosecution of unqualified practitioners; and 82 were of a personal and miscellaneous character. Notwithstanding the heavy expenses thus incurred we are glad to see by the balance-sheet that the finances of the union are in a most satisfactory condition. The total number of members on the register amounted to 6575, 532 new members having been admitted during the year.

IS ASPARAGUS WHOLESOME?

ASPARAGUS is the precursor of the season of fresh vegetables and there is probably no other vegetable the flavour of which is so highly esteemed as is that of tender asparagus. Chemical analysis offers no explanation of its pleasant flavour but assigns to it a decidedly high nutritious value. Asparagus, however, furnishes one of those interesting examples of a food which, though containing more water in its composition than does milk, is nevertheless a solid substance. Thus the head of the asparagus contains slightly more than 93 per cent. of water, which is only 1 per cent. less than that contained in the lettuce but 5 per cent. more than is present in milk. The solid constituents, however, are particularly rich in nitrogenous substances which amount to 30 per cent. of the dried vegetable. Amongst these may be reckoned a purin body, to which has been ascribed the harmful influence of asparagus on some persons with a gouty tendency. When asparagus is consumed in large quantities the output of uric acid is very distinctly increased. The same effect is obtained after drinking copiously of beer which also contains purin bodies, although they are entirely absent in wines and, of course, in spirits. Sweetbread may be objectionable on similar grounds. There is no reason for thinking, however, that when asparagus is eaten in reasonable quantities it causes any undesirable disturbance of the bodily functions. On the contrary, it is very digestible and is easily tolerated, even by invalids. A certain amount of prejudice exists in regard to asparagus owing to one peculiar effect on metabolism, which is well known to every consumer of it. During digestion a very small quantity of volatile product containing sulphur is formed which has a particular odour. This body, known as methyl-mercaptan, originates during intestinal digestion, most

probably from the peculiar principle, asparagine, and has no reference apparently to the function of the kidneys. There are no doubt examples of persons who exhibit an idiosyncrasy towards asparagus and develop unpleasant symptoms after eating it, just as there are people who are poisoned by mutton or strawberries, but on the whole there is nothing to be said on physiological grounds against moderate indulgence in this very popular vegetable food.

THE CLEARING OF THE AIR.

FROM an interesting communication by Mr. A. G. R. Foulerton and Dr. A. M. Kellas, published in another column, it would appear that electrical discharges of high potential and rapid frequency are without direct effect upon micro-organisms but that indirectly these discharges destroy germs owing to the action of chemical substances formed as the result of electrical action on the atmosphere through which the discharge takes place. Amongst the products formed in the air on the passage of the discharge are nitrous and nitric acids and probably ozone and peroxide of hydrogen, all of which are powerful germicides, but more particularly so at the moment of their formation. It is well known that substances which in the free condition are comparatively inert are intensely active in the nascent state. In view of these results there seems to be little doubt that the occurrence of a thunderstorm must exert a powerful purifying influence on the air, even to the total destruction of organisms. It is often stated that a thunderstorm does good because it clears the air, but so far this statement has not received explanation in such precise scientific terms. Further, it would be interesting to determine whether the production in the nascent state of nitrous acid, ozone, or peroxide of hydrogen has anything to do with the "turning" of milk or the "hardening" of beer which frequently happens during the progress of a thunderstorm. The treatment of disease, as, for example, lupus, by "high-frequency" discharges may after all owe its success to the formation of these germicidal substances in the intensely active condition known as the nascent state, in which case the employment of "high-frequency" discharges would be merely a reversion to the antiseptic method but probably with more intense effect.

THE PATHOGENY OF DIABETES.

IN THE LANCET of May 5th, p. 1229, we published a paper on the above subject read before the International Congress of Medicine at Lisbon by Dr. F. W. Pavy. The researches of Dr. Pavy into the causation of diabetes are well known and consequently any further communication from him on the subject merits most careful attention. Various theories as to the pathogeny of diabetes have been expressed by competent observers from time to time but even now no unanimity of opinion can be said to exist. The kidney, the liver, and the pancreas have in turn been considered the organ in which the disease originated but most authorities now point to the nervous system as playing the most important rôle in the production of glycosuria. The exact manner in which its action is brought to bear, however, appears to be doubtful. Dr. Pavy adduces some powerful arguments in favour of the vaso-motor system supplying the chylopoietic viscera being mainly involved. He points out that it is in connexion with the neuropathic disposition that diabetes is most frequently found to exist and the more sensitive and highly strung the nerve organisation the more intense is the form that the disease assumes. He further remarks that a cerebral influence over the vaso-motor state is what is suggested as constituting the link between the brain and diabetes. But little is known at present of the physiology of the vaso-motor system of nerves through which cerebro-spinal influence upon vessels is exerted. Certain parts of the grey matter of the brain appear to be in touch with vascular areas and it is suggested that the nerve filaments of the sympathetic system are not only connected with the spinal cord and medulla oblongata but with spots at the surface of the brain which stand in the position of cerebral vaso-motor centres. Upon these grounds Dr. Pavy considers that a chain of connexion becomes established, rendering it possible for diabetes to constitute a disease belonging to the neurosis class, the difference in its case being the implication of a particular area belonging to the vaso-motor system instead of structures connected with voluntary motion, sensation, and the mind. Morat and Dufour, from their researches, maintained that sugar formation is a function of the liver cells, under the control of certain undetermined excito-secretory nerves which they considered distinct from the vaso-motor nerves. It may well be suggested that this nervous influence may be liberated by certain toxins and the pancreas may also have an influence upon this function. Doubtless other investigations will be made to corroborate or otherwise Dr. Pavy's conclusions but until such are concluded the pathogeny of diabetes must still remain in doubt, although his researches must be taken as being amongst the mort important and suggestive yet published.

A PATIENT'S COMPLAINTS AS EVIDENCE.

ONE of the very few exceptions allowed by a court of law to the rule which rigidly excludes hearsay testimony as valid evidence is that exclamations and statements made by an injured or sick person concerning the symptoms from which he suffers may be admitted as evidence, for it is by the aid of such information that the medical adviser arrives at his diagnosis and is able to decide upon a line of treatment. Recently in the Supreme Court of Michigan there was an unsuccessful attempt to enlarge the scope of this exception. The victim of a railway accident called in the medical man who was permanently retained as the expert witness of the defendant railway company; to him she detailed her symptoms, notably certain localised pain and tenderness were alleged by her. The court held that to admit these statements as evidence would be a breach of the rule which forbids the production of hearsay testimony. The court suggested that even if the statements of the patient were admitted the possibility of malingering would have to be discussed fully. Apart from this phase, however, the court decided that it was the design of the plaintiff to make the communications for the purpose of enhancing her claim and that fact made them inadmissible for the reason that they were not the natural expressions of present sufferings but voluntary statements for an ulterior purpose and hence they were not within the above exception to the hearsay rule.

ANTE-PARTUM OPHTHALMIA.

IN the *Ophthalmoscope* for April Mr. Sydney Stephenson and Dr. Rosa Ford have published an important paper on a condition supposed to be extremely rare but which they think occurs more frequently than is supposed—ante-partum ophthalmia. By ante-partum ophthalmia they mean an inflammation of the conjunctiva produced in utero by infection with a microbe (generally the gonococcus), the incubation period of which has elapsed completely or partially before birth. They have found recorded 37 cases, to which they add 17 cases observed by themselves. These include seven cases in which the symptoms developed within 24 hours of birth—a time which they take for the present purpose as the minimum incubation period. The majority of cases of ophthalmia neonatorum occur on the

third day after birth, which shows the duration of the incubation period. The text-book statement that the incubation period varies from a few hours to two or three days probably is due to inclusion of cases of ante-partum infection. The gonococcus appears to gain entrance to the conjunctival sac through membranes that have been ruptured some time before birth. Of 28 cases in which the time of rupture is mentioned the interval before birth was not less than 24 hours in 12 cases. But in 16 cases the interval between rupture of the membranes and the discovery of the ophthalmia was less than 24 hours. To explain these cases slight lateral tears of the membranes or infection through uninjured membranes must be assumed. A local factor is indicated in seven of the cases by the fact that one eye alone was affected at birth. In most of the cases the labours were normal. In 15 of the cases the gonococcus was found, in two the pneumococcus, and in one the bacillus coli. Many of the cases were at birth in the early stage of ophthalmia, but in two cases the disease had apparently run its course, leaving a damaged or shrunken eyeball. Perhaps in gonorrhœal metritis or endometritis gonococci pass through the chorion during early pregnancy when its vascular connexion with the uterus is marked. The hypothesis remains that the fœtal circulation may be infected in consequence of general gonococcic infection of the mother. Mr. Stephenson and Dr. Ford suggest that many congenital affections, such as staphyloma, corneal opacities, microphthalmos, lacrymal abscess, and vulvo-vaginitis, may be due to intra-uterine infection.

THE CARE OF THE SPONGE.

ONE of the most agreeable and convenient adjuncts concerned in preserving personal cleanliness is the sponge. Considering the extraordinary capacity of the sponge for holding water and the frequency of its use it is obvious that enormous quantities of water must in the course of time pass through its innumerable cells. For example, if a sponge which absorbs, say, a pint of water is alternately soaked and squeezed out a dozen times during a bath the amount of water that has entered into, and passed out of, the sponge at a single sitting, so to speak, would be 12 pints, so that during a year at this rate no less than 500 gallons of water would have traversed its cells. This estimate is not an exaggerated one and probably the sponges of most cleanly disposed persons are made to deal with a larger quantity than this. However that may be, it is obvious that the sponge must arrest the impurities of a water just as does a good filter and sooner or later slimy matter accumulates, the quantity and quality of which depend upon the character of the water-supply. The use of soap would, as a rule, increase the slime owing to the formation of insoluble curds of lime soap. The number of organisms and the amount of impurity in the water may be quite insignificant in relatively small volumes of the water, but when the accumulation caught in a sponge represents some hundreds of gallons of water the sponge may obviously teem with potentialities for evil. The bacteriology of water slime is of the greatest interest since it is this slime found on all the sand filter-beds which removes dangerous entities and thus protects a community from water-borne disease. The unclean sponge contains a similar slime which must prove a very prolific breeding-ground for micro-organisms. A consideration of such facts emphasises the desirability of keeping the domestic sponge absolutely clean and all doubt as to the presence of seeds of disease should be removed by thoroughly disinfecting the sponge at regular intervals. There is no better disinfectant for the purpose than sunlight and the sponges, after having been washed thoroughly in strong washing soda solution and rinsed in a weak solution of hydrochloric acid and finally in pure water, should be squeezed and hung up to dry in the sun's rays. This process also renovates the sponge in a most satisfactory manner. Amongst artificial disinfectants a weak solution of formaldehyde, or sulphurous acid, would appear to be suitable.

THE TREATMENT OF INOPERABLE SARCOMA WITH THE MIXED TOXINS OF ERYSIPELAS AND THE BACILLUS PRODIGIOSUS.

Dr. W. B. Coley has contributed to the *American Journal of the Medical Sciences* for March an important paper in which he gives the late results of the treatment of inoperable sarcoma with the mixed toxins of erysipelas and of the bacillus prodigiosus. It may be remembered that in 1891 he first described the treatment of inoperable sarcoma with repeated injections of the streptococcus of erysipelas. This treatment was suggested by a case of very malignant round-celled sarcoma of the neck, which recurred four times after operation. It finally so involved the deep tissues that operation was impossible. Soon after the last operation an attack of erysipelas occurred, which was followed by a relapse. The tumour disappeared and the patient was well seven years later. In a case of inoperable recurrent spindle-celled sarcoma of the tonsil and cervical glands Dr. Coley injected beneath the skin of the neck covering the tumour a culture of the streptococcus of erysipelas. A typical attack of erysipelas followed, the tumour broke down, and the outlying nodules disappeared. The patient recovered health but a hard fibrous mass remained in the tonsil which had lost its malignant character. He remained well for eight years and then succumbed to recurrence. Ten other cases (four cases of carcinoma and six of sarcoma) were treated in the same way but in six (including all the cases of carcinoma) repeated injections failed to produce erysipelas. In most of these slight improvement took place while repeated injections of the cultures were being given. In the four positive cases one patient remained well for eight years and then died from recurrence and another remained well for three and a half years and then died from metastases. The occurrence of two fatal cases caused Dr. Coley to abandon injections of the streptococcus of erysipelas for those of its toxins. To intensify their action he added the toxins of the bacillus prodigiosus. The value of his present paper lies in the fact that he is able to give his final results. He reports 36 cases in which the tumour disappeared under the treatment. These were as follows: round-celled sarcoma, 13; spindle-celled sarcoma, 16; mixed-celled sarcoma, two; epithelioma, one; chondro sarcoma, one; and three in which no microscopic examination was made. In ten of these cases the patients were well more than ten years later at the time of the report. In 26 cases the patients were well at periods varying from three to 13 years after treatment. In five cases fatal recurrence took place after the patient had remained well for periods varying from six months to three and a quarter years. These results would be remarkable in cases of primary operable sarcoma. But here the patients were beyond hope from operation. In carcinoma Dr. Coley finds that the toxins have a marked inhibitory action but that this is rarely curative. He has collected 60 cases of malignant disease treated by other surgeons with complete or partial success; 27 of the patients were alive and well at periods varying from three to 12 years after the treatment. These results certainly are remarkable but we think that it is a pity that Dr. Coley neglects to state what proportion the successful cases form of the total cases treated. However, he appears to justify his claim that this treatment should be a routine after all primary operations for sarcoma and carcinoma. As to the

question of using the toxins before amputating in sarcoma of the extremities he has collected 12 cases, of which three are personal, in which this treatment rendered amputation unnecessary. In cases in which the sarcoma has become generalised by formation of metastases he was inclined to advise against the use of the toxins. But he has observed two successful cases and others have been reported, including one published by Mr. W. H. Battle. Dr. Coley claims that this treatment has one advantage over that by the x rays; he has seen rapid breaking down of the tumour under the latter followed by metastases, but he has never seen this result even in cases of the most rapid disappearance under the toxin treatment.

THE DECLINE OF THE MARRIAGE-RATE IN ENGLAND.

THE national and social importance of the recent marked and continuous decline in the English marriage-rate and birth-rate can scarcely be over-estimated. Two recent and valuable contributions to the *Journal of the Royal Statistical Society* conclusively demonstrated that the persistent decline in the birth-rate in England can only to a very slight extent be attributed to the decline in the marriage-rate. The recently issued annual report of the Registrar-General, dealing with the statistics for 1904, throws, however, new light upon the decline in the English marriage-rate during the past 30 years which is not devoid of public interest. The Registrar-General's annual reports, of which the one just issued is the sixty-seventh, have accustomed us to accept as the marriage-rate the number of persons married during a year in each 1000 of the population at all ages. Calculated in this manner, the marriage-rate in England and Wales declined, with slight fluctuations, from 16·7 per 1000 in the three years 1870–72 to 15·2 per 1000 in 1904, signifying a decline of 9 per cent. in the rate of marriage. In consequence, however, of the decline in the birth-rate the age constitution of the English population has been materially altered. For instance, during the last census decade (1891–1901) the number of persons aged under 15 years, increased by but 3·67 per cent., whereas the increase of persons aged upwards of 15 years was equal to 16·74 per cent. Mindful of this fact, the Registrar-General in his last report gives the proportion of persons married to 1000 of the unmarried and widowed population aged upwards of 15 years among whom the marriages actually occur. Calculated in this manner, we are told that the marriage-rate declined from 57·2 per 1000 in the three years 1870–72 to 46·5 in 1904; this shows that the true decline in the marriage-rate of the unmarried and widowed aged over 15 years was 19 per cent. instead of 9 per cent., based on the crude rate calculated upon the entire population at all ages. Census returns show the result of this decline in the marriage-rate, for whereas in 1871 the proportion of the married in the English population aged upwards of 15 years was 54·0 per cent., the percentage of the married declined to 53·4 in 1881, to 51·9 in 1891, and to 51·5 in 1901. This decline in the marriage-rate, which was most marked during the ten years 1871–81, appears to have been very general throughout England and Wales; the only counties which showed an increased marriage-rate between 1871 and 1904 being the metropolitan portions of Middlesex and Surrey and Essex, mainly due to the migration of London residents to the suburban districts beyond the metropolitan area. The largest decline in the marriage-rate during this period was 29 per cent. in Lancashire, 28 per cent. in Staffordshire and in the East Riding of Yorkshire, and 26 per cent. in Worcestershire and in the West Riding of Yorkshire. Speaking generally, this decline of marriage was far more marked in the urban than in the rural counties. For instance, it was less than 5 per cent. in Hertfordshire, Wiltshire, Herefordshire, Pembrokeshire, and Montgomeryshire, and the rate was stationary in Anglesey. This decline has, moreover, affected the marriages of bachelors and widowers and of spinsters and widows, although to a varying extent. During the period under notice (1871–1904) the decline in the marriage-rate of bachelors (aged upwards of 15 years) declined 14·4 per cent., while the decline in the marriage-rate of widowers was no less than 42·2 per cent. Similarly, while the decline in the marriage-rate of spinsters in this period did not exceed 19·3 per cent. that of widows was equal to 40·8 per cent. The Registrar-General calls attention to the interesting fact that in spite of the recent marked decline in the rate of remarriage among widowers and widows their proportions in the male and female English population respectively show a decline. Of 1000 males over 15 years of age enumerated in England and Wales in 1871 57·3 were widowers, while the proportion had declined to 52·6 per 1000 at the last census in 1901; and of 1000 females of similar ages the number returned as widows had declined from 116·3 in 1871 to 108·2 in 1901. It may further be noted that this decline in the proportion of widowers and widows in the English population is confined to the age-period 15–35 years, the numbers of widowers and widows above the age of 35 years having relatively increased during the period under notice. It seems, therefore, probable that the declining marriage-rate of widowers and widows in recent years should not be entirely attributed to their decreasing tendency to remarriage but may be partly due to increased duration of life and to a consequent decrease in the proportion of persons widowed at the younger ages. The expectation of remarriage obviously decreases with the increased age of the widower and widow. Concurrently with the general decline in the marriage-rate it is satisfactory to note a marked decline in the proportion of marriages of minors, although of those married in 1904 in England and Wales 46 per 1000 of the husbands and 153 per 1000 of the wives were under the age of 21 years. Compared, however, with the proportions that prevailed 30 years ago, the number of bridegrooms and of brides under age showed respectively a decrease of 41·4 and 29·6 per cent. While the general decline in the English marriage-rate suggests grave doubts of social well-being, the decrease in the proportion of marriages of minors must be viewed with satisfaction.

A SUGGESTION TO MEDICAL OFFICERS OF HEALTH.

IN a letter published in THE LANCET of May 12th, p. 1348, Mr. S. Constable calls attention to the continual anxiety caused to many medical practitioners by the dirty and ignorant women whom they so often encounter in their midwifery practice playing the rôle of nurse. He makes the suggestion that medical officers of health should induce their parochial councils to get someone to give free simple lectures to these women on the essentials of monthly nursing. There can be no question but that some such scheme would be of the greatest benefit to the poor. Only too often the women have to intrust themselves after their confinements to the tender mercies of some kindly neighbour anxious to do what she can but with little knowledge or to some so-called nurse quite untrained who is only too often a grave source of danger to her patients. No doubt a very beneficial effect will be exercised upon these women by the spread of better training amongst the midwives of the country. When they see the amount of care taken by the latter they will realise the great importance to their patients of cleanliness and the use of antiseptics. In the meantime, something is being done by the endeavours of some of the county

councils to teach the elementary facts of sick nursing in their schools, and some authorities at any rate have already at hand possible teachers and lecturers in the persons of the women inspectors of midwives. District nurses, too, in rural districts might well be called upon to spend some of their time in training the women who practise as nurses in their neighbourhoods. No doubt in time we shall see marked improvement in this respect and indirectly we may expect much good to result both in this and in other forms of nursing amongst the poor from the operation of the Midwives Act.

THE SERUM TREATMENT OF DYSENTERY.

AT a meeting of the Académie de Médecine of Paris on Feb. 20th Professor C. Dopter and M. L. Vaillard communicated an important paper on the Serum Treatment of Dysentery. They pointed out that dysentery was not the name of a disease but of a number of diseases, of which two principal forms—bacillary and amœbic—are recognised. It is only with the bacillary or epidemic form of the disease that their communication deals. They have previously proved by experiments[1] the specificity of the bacillus of dysentery, confirming the work of Chantemesse and Widal, Kruse and Flexner, and the Japanese bacteriologist Shiga. The subcutaneous inoculation of the dog or the rabbit with the bacillus produces typical and fatal dysentery. In these animals, as in man, the infection becomes localised in the intestinal mucosa and its lymphatic glands. The toxin of the bacillus produces the same effects, local and general, as the organism itself. When injected subcutaneously it shows an elective affinity for the intestinal mucosa, especially that of the large intestine, and produces the characteristic lesions of dysentery. The toxin has also an action on the nervous system which is shown by paralyses and terminal hypothermia. Shiga was the first to produce an anti-dysenteric serum. He immunised animals against dysentery and showed that their serum could prevent and cure experimental infection of the mouse and the guinea-pig. In man his serum reduced the mortality of the disease by more than two-thirds and almost immediately relieved the symptoms. In Germany Kruse prepared a similar serum but his results were not so good. Both Shiga and Kruse used cultures of the bacillus, living or dead, to immunise animals. They ignored the existence of a soluble toxin. The serum thus prepared possessed bactericidal but not perceptible antitoxic properties. In 1903 Charles Todd showed that the bacillus of dysentery secretes toxin, the repeated injection of which into the horse gives to its serum antitoxic properties.[2] In 1904 at Moscow Rosenthal immunised horses by means of living cultures and the soluble toxin and obtained a bactericidal and antitoxic serum, the use of which reduced the mortality of the disease from one varying between 12 and 17·5 to 4·5 per cent. At the Institut Pasteur since 1903 Dopter and Vaillard have immunised horses by the weekly and alternate inoculation of increasing doses of the living bacilli and the soluble toxin. The injections are first given subcutaneously and then intravenously. The serum of these horses has immunising properties against both the bacillus and its toxin. Subcutaneous injection of from 0·05 to 0·25 of a cubic centimetre at the time of experimental infection with a fatal dose, or several days beforehand, protects rabbits. The immunity lasts from eight to ten days; then it rapidly disappears. From one to two cubic centimetres of the serum injected 24 hours after infection insures recovery. But when the injection is delayed 48 hours recovery is doubtful; by intravenous injection better results are then obtained. In man similar results were observed. Of 96 patients suffering from dysentery and treated by subcutaneous injection of the serum, many of whom had the disease in a severe form (from 30 to 288 stools daily), only one died. In the milder cases (from 15 to 30 stools daily) an injection of 20 cubic centimetres of the serum during the first five days immediately relieved the symptoms and proved curative in two or three days. The improvement was not so sudden or so great when the dysentery had lasted longer—from eight to 15 days. However, it was definite; blood no longer exuded from the intestine but the colic persisted, and the stools, though diminished in number, still remained frequent (from eight to 15 in the 24 hours). If another injection was given on the next day, and perhaps still another on the day following, recovery rapidly took place (in from three to five days). In the severe cases the action of the serum was even more marked. In cases treated early an injection of 20 or, better, of 30 cubic centimetres brought about recovery in three or four days. Sometimes a second injection on the following day was necessary and even a third or fourth injection was sometimes required. In very severe cases the dose was increased to from 40 to 60 cubic centimetres and in certain cases even to 80, 90, and 100 cubic centimetres. If the improvement was not thought sufficient the injections were repeated on the following days in increasing doses. In one case they were given for 17 days and in all 1080 cubic centimetres were injected. Even in the largest doses the serum is innocuous.

[1] Annales de l'Institut Pasteur, July, 1903.
[2] Brit. Med. Jour., Dec. 5th, 1903, p. 1456.

ST. BARTHOLOMEW'S HOSPITAL VIEW DAY.

VIEW DAY at St. Bartholomew's Hospital was held on May 9th and the day was one of special interest in that the new buildings of the out-patient and special department block were far enough advanced for inspection. The evening entertainment was devoted to a very charming programme of ancient dances and music presented by Miss Nellie Chaplin. Every dance was introduced with a short description by Mr. F. Cunningham Woods. The primitive dance was probably always accompanied by words or perhaps we should say that the primitive song was accompanied by dancing. The vocal dance has now, however, almost disappeared, the chief survival being the solemn ceremony which is sung and danced before the high altar at Seville on the feasts of the Assumption and of Corpus Christi. Other survivals are to be found in children's singing games, a number of which have been collected by Miss Gomme. The Elizabethan ballet or Fa La is still in high favour with madrigal societies as a musical composition but it is never danced, two well-known instances being Morley's "Sing We and Chaunt It" and "Now is the Month of Maying." Miss Chaplin's entertainment did not contain an example of the Elizabethan ballet but the programme included, amongst others, examples of the pavane, the galliard, the chaconne, the passepied, the saraband, the gavotte, and the minuet, besides an Irish jig. The whole entertainment was thoroughly artistic and it is satisfactory to state that the fund for the pathological block in aid of which the entertainment was organised benefited by the sum of over 120 guineas.

A NEW METHOD OF DRESSING WOUNDS BY MEANS OF BENZOL.

M. E. Crouzel, in the *Répertoire de Pharmacie* of March 10th, p. 101, suggests a new method of dressing wounds by means of benzol. In his opinion the problem of maintaining a wound in an aseptic condition has hitherto been attacked along the wrong lines. His method is based upon the removal of pus which is of a fatty nature and serves to fix the other products of suppuration and set up complications by the accumulation of the various products

of decomposition and excretion on the surface of the wound. Pure benzol is selected as a suitable solvent as it is non-toxic while it possesses well-marked antiseptic properties. It is one of the best solvents of fat and when applied to a wound by means of a sponge of cotton-wool or gauze it readily removes all morbid products, including pus, epithelial scales, fleshy débris, and blood. At the same time, owing to the rapidity with which it evaporates, it promotes a pleasant sense of coolness on the parts to which it is applied. The characteristic odour of benzol may be masked by the addition of 2 or 3 per cent. of nitrobenzene or guaiacol. M. Crouzel suggests that the employment of benzol in surgical practice might be extended to the outward application of many medicinal substances, including camphor, quinine, morphine, strychnine, iodine, sulphur, and phosphorus. A solution of paraffin or guttapercha in benzol affords an impermeable dressing for wounds of wide applicability. For some purposes benzol might with advantage be dissolved in alcohol or in ether. As an anæsthetic application to painful wounds and to abscesses requiring incision a solution of menthol in benzol is efficacious. Instruments dipped in a 5 per cent. solution of vaseline in benzol do not rust. The cheapness of benzol is another point in its favour, especially in hospital practice, as it can be used in many cases in place of alcohol. But it is necessary to exercise care to protect the vapour from naked lights as benzol is highly inflammable.

THE CAMPBELL POPE MEMORIAL FUND.

AN appeal to the medical profession is being made in order to render some tribute to the memory of the late Dr. Campbell Pope, who practised for many years in the neighbourhood of Shepherd's Bush and who commanded in so many directions the respect and affection of his medical *confrères*. The following circular has been issued by an influential committee and so clearly does it put the case that we do not attempt to add a word to its arguments.

The sudden death of the late Dr. Campbell Pope of Shepherd's Bush, on Jan. 2nd, came as a great shock to his many friends and elicited widespread sympathy with his widow and family of two sons and four daughters. For 30 years Dr. Pope had practised in Shepherd's Bush and besides endearing himself to a wide circle of patients and friends he had devoted no small share of his too busy life to public duties in connexion with his profession, serving as a vice-president, and formerly for some years as honorary secretary, of the Medical Defence Union, as chairman of the Kensington division of the British Medical Association, and as honorary secretary, vice president, and subsequently president of the West London Medico-Chirurgical Society. It was felt by some of Dr. Pope's intimate friends that his high personal character and life of public usefulness warrant some special tribute to his memory and when it became known that, owing to his heavy professional expenses and the education of his children, the widow and family had been left very inadequately provided for, his friends felt impelled to take steps to raise a memorial fund which might be devoted to supplementing the very limited resources of his family, and more especially to assist in completing the education of the children. In this connexion it may be mentioned that his eldest son is completing his curriculum of medical study at St. Mary's Hospital and that for examination fees and other expenses a substantial sum will be required before he can obtain his medical qualifications.

The names of the committee who have signed this circular note are as follows:—

Chairman: Dr. Frederick T. Roberts. Treasurers: Dr. H. A. Caley, 24, Upper Berkeley-street, W.; Mr. C. R. B. Keetley, 56, Grosvenor-street, W.; and Mr. J. F. Long, London and County Bank, Hammersmith, W. Honorary Secretary: Mrs. Brandon, "Oakbrook," Ravenscourt Park, W. Members: Mr. T. Gunton Alderton, Dr. A. G. Bateman, Mr. L. A. Bidwell, Sir William Bull, M.P., Mr. A. St. Clair Buxton, Rev. W. Dunckley, Right Honourable Sir Walter Foster, M.P., Dr. W. S. A. Griffith, Sir Victor A. H. Horsley, Rev. S. K. Lockyear, Mr. A. W. Vaisey, and Dr. James Wilson.

Donations or, if preferred, subscriptions over a term of years will be gratefully received by the honorary treasurers or by the honorary secretary. We shall announce in THE LANCET the names of all donors.

THE SEISMOMETER IN ITALY.

SHORTLY after 5 A.M. on April 18th the first shocks of earthquake were felt in San Francisco, and at 2.25 P.M. of that day the Director of the Osservatorio Ximeniano in Florence (the Padre Alfani) announced that "the seismic apparatus had begun to register a perturbation due to a very violent earthquake. The first calculations indicate the shocks as about 9900 kilometres distant from the Observatory. The violence of these was such that many of our instruments have been put out of gear." Up to 6 P.M. the apparatus continued to register the passage of seismic waves; but at that hour (according to the Padre Alfani) it was still impossible to fix the scene of the telluric storm. A little later, at the office of the *Nazione* and other newspapers of Central Italy, arrived the first brief telegrams announcing the terrible calamity that had befallen San Francisco. The above coincidences are worth noting, as indicative of the advance achieved in seismometry since the first attempts of Babbage down to the instrument constructed some 20 years ago by Grey and Milne working on the lines of Ewing. Prior to these the Italians claim for Count Michele di Rossi of the observatory under Rocca di Papa in the Agro Romano the invention of a yet more delicate and efficient apparatus which registered the telluric tremors preceding the frightful earthquake at Casamicciola in the Bay of Naples in the July of 1883. On the strength of these indications it is well known Count Michele di Rossi issued his urgent warning to the hotel keepers at Casamicciola and other balneary resorts in the Island of Ischia; but—the season being then at its height and the "albergatori" reaping a richer harvest than usual—his message was ignored. Italian observatories, notably those at Florence and Padua, are by this time more perfectly equipped than that of Count Michele di Rossi, and, coöperating as they all are with increased energy and ampler subsidies, a still further advance may be expected from them worthy of the land of Galileo and Torricelli, of Galvani, Volta, and Marconi.

THE SOCIETY FOR RELIEF OF WIDOWS AND ORPHANS OF MEDICAL MEN.

WE published last week a brief account of the annual meeting of this excellent society and we now take occasion to call the attention of our readers to its work and record. The society was founded in 1788, being the third of its kind to be founded in England, and is now one of the richest, if not the richest, in the country, the invested funds amounting to £98,810.

Any person duly registered under the Medical Act and resident within a radius of 20 miles from Charing Cross shall be qualified to be proposed for election as a member of the society. That the whole of any township or parish to which the 20 mile radius may reach shall be considered as entirely within the said radius.

The annual subscription is two guineas, payable either in one sum or in two half-yearly amounts of one guinea each. After paying for 25 years members become life members and are exempted from further contributions.

Every member whose age at the time of his election shall not exceed 30 years may become a life member upon payment of the sum of 20 guineas; if his age shall exceed 30 and shall not exceed 40 years, upon payment of the sum of 25 guineas; and if his age shall exceed 40 years, upon payment of the sum of 30 guineas; provided that such payment be made within three months from the date of his election.

Relief is granted only to the widows and orphans of deceased members. The advantages of the society cannot be too strongly or constantly urged upon the members of the medical profession, for at each quarterly court of directors relief has to be refused to many applicants simply owing to the fact that their husbands had not been members of the society. Some remarkable instances may here be quoted showing the advantages derived by the widows and orphans of deceased members. One widow, whose husband had paid £18 18*s.* in subscriptions, received in grants for herself and family the sum of £2272; another received £1654; three widows, whose deaths were reported at the last quarterly court, received an average of £700 each. At the present time a widow is in receipt of a grant of £125 per annum for herself and five children. The above are striking examples and many more

could be quoted. Full particulars of the society and proposal forms for membership can be obtained on application to the secretary at the offices of the society, 11, Chandos-street, Cavendish-square, London, W.

A PROVINCIAL sessional meeting of the Royal Sanitary Institute will be held at the municipal council chamber, Telverton-road, Bournemouth, on Saturday, May 26th, at 11 A.M., when a discussion will take place on sanitary administration in a health resort. The discussion will be opened by Mr. P. W. G. Nunn, medical officer of health of Bournemouth, from whom tickets for admission to the meeting may be had.

THE *London Gazette* officially announces that Lieutenant-Colonel Havelock H. R. Charles, I.M.S. (Bengal), surgeon of the staff of the Prince of Wales during the visit of their Royal Highnesses the Prince and Princess of Wales to India, has been made a Knight Commander of the Royal Victorian Order. Fleet Surgeon Robert Hill, R.N., of H.M.S. *Renown*, has been made a Member of the Fourth Class of the same Order.

BY permission of Mrs. William E. Scott a drawing-room meeting will be held to-day, Friday, May 18th, at 3 P.M., at 11, Kensington-court, London, W., in aid of the Infants' Hospital. Mr. Benjamin Broadbent (mayor of Huddersfield) will preside. Mr. J. S. Fletcher, M.P., and Dr. C. W. Saleeby are expected to speak.

IN accordance with the Medical Act (1886) Amendment Act of 1905 the province of Nova Scotia has been recognised as affording under local legislature proper privileges to registered medical practitioners. The province has therefore been declared by the King in Council to be one to which the second part of the Medical Act (1886) now applies.

THE Association of British Postal Medical Officers will hold its annual banquet in the Whitehall Rooms, Hôtel Métropole, London, upon Wednesday, July 11th, at 7 for 7.30 P.M., "to meet the Right Hon. Sydney Buxton, M.P., His Majesty's Postmaster-General."

THE ceremony of laying the foundation-stone of the South London Institute for the Blind, Borough-road, Southwark, will take place on Thursday, May 24th, at 2.45 P.M. The stone will be laid by the Duke of Argyll.

THE Corporation of McGill University, Montreal, has unanimously resolved to confer the honorary degree of LL.D. on Dr. Donald MacAlister, President of the General Medical Council of the United Kingdom.

Baron Takaki, F.R.C.S., the late Director-General of the Medical Department of the Imperial Japanese Navy, has had conferred upon him by the University of Durham the degree of D.C.L.

THE annual meeting of the Children's Country Holidays Fund will be held at the Hotel Métropole, Whitehall-place, London, on Monday, May 21st, at 3.45 P.M.

CREMATION SOCIETY OF ENGLAND.—The report of the council of the Cremation Society of England for the year 1905 shows that during the 12 months under notice 95 cremations were carried out at Woking as compared with 138 in 1904. This considerable falling off is probably due in some measure to the increased number of crematoria in the country and the growing influence of Golder's Green. The council is contemplating greater activity in making the advantages of cremation more widely known by advertising in various ways. The total number of cremations that have taken place at Woking to the end of 1905 is 2748.

SIXTY-SEVENTH ANNUAL REPORT (FOR 1904) OF THE REGISTRAR-GENERAL.

II.[1]

IN resuming consideration of this report we notice that considerable attention is devoted to the prevalance and fatality of tuberculosis and cancer—two diseases possessing in common these characters, first, that they are responsible for a large share of the total mortality in this country and, secondly, that they seriously impair the working capacity of the survivors from attack by these diseases respectively. The importance of tuberculosis as a factor in English mortality appears from the statement in the report that it accounts normally for at least 11 per cent. of the mortality from all causes. Out of every ten deaths from tuberculosis about seven are due to the pulmonary variety of that infection. Although, as compared with the average, pulmonary tuberculosis showed decreased fatality in the year 1904, yet even now it is responsible for between 1200 and 1300 deaths annually in each 1,000,000 of the population. This disease for the most part pursues a somewhat lingering course, the duration of illness in fatal cases being roughly estimated at about two years, and during a large part of this period the sufferer is seriously handicapped by increasing debility in his struggles to provide sustenance for his family and himself. Statistics show that, speaking generally, pulmonary tuberculosis is about half as fatal again to males as it is to females, the difference being more pronounced in the town than in the country. Disregarding counties of less than 100,000 inhabitants, we learn that among males pulmonary tuberculosis was least fatal in Monmouthshire, where the rate of mortality was 829 per 1,000,000, in Lincolnshire 881, and in Buckinghamshire 890 per 1,000,000. Among other counties the rate rose to 1618 in Carmarthenshire, 1622 in Northumberland, 1642 in Warwickshire, 1694 in Lancashire, and 1720 in Hampshire, whilst in London it amounted to 2106 per 1,000,000. Among females, whilst the rate did not exceed 750 per 1,000,000 in Oxfordshire, 780 in Worcestershire, and 783 in Staffordshire, it rose to 1186 in Durham, 1194 in Denbighshire, 1205 in Glamorganshire, 1316 in Northumberland, 1665 in Carmarthenshire, and 1819 in Carnarvonshire. It is noteworthy, however, that in the metropolis females do not resemble males in suffering exceptional fatality from this disease.

If the rates in the year 1904 be compared with the average in the preceding five years the following facts will be observed. 1. That in the country generally the mortality from pulmonary tuberculosis was below the average, except among males under the age of 15 years and among females at from 10 to 15 and at from 55 to 65 years. 2. That in the urban districts males under 20 years and from 55 to 65 years succumbed to this disease more readily than the average, the same being true of females at ages from 10 to 15 and from 45 to 65. 3. That in the rural districts males suffered more severely than the average at ages from 25 to 35 years, and from 45 to 65, and females more severely at ages from 5 to 10, from 15 to 20, from 25 to 35, and from 55 to 65 years. Except at the age from 15 to 35 in males and at the age from 10 to 35 in females, pulmonary tuberculosis appears to be more fatal in the town than in the country. The age of maximum fatality from this malady is now, and for several years past has been, as follows: in England and Wales generally and in the urban districts from 45 to 55 for men and from 35 to 45 for women; in the rural districts it is from 25 to 35 for both sexes.

From a table in the report we learn that of the eight European countries which furnish returns for publication in the Registrar-General's reports, in all except Italy the average mortality from pulmonary tuberculosis exceeded that of England and Wales. In Ireland the mortality was excessive and in Scotland it was higher than it should be. In New Zealand and in all the States of the Australian Commonwealth, except Victoria, it was considerably below the English rate. The death-rate in the Austrian empire, in Servia, and in Ireland is abnormally high and shows no tendency to decrease. On the other hand, in England, Wales, and Scotland and in five European countries—viz., Germany, the Netherlands, Belgium, Norway, and Italy—a diminution

[1] Previous notices of this report will be found in THE LANCET of April 21st (p. 1120) and May 5th (p. 1264), 1906.

in the death-rate from pulmonary tuberculosis has taken place in recent years.

Although among adults pulmonary tuberculosis is the most frequent form of this infection, the report shows that among children tuberculous meningitis and tuberculous peritonitis are the forms that destroy the largest proportion of lives. The mortality from tuberculous meningitis appears to be decreasing; nevertheless, the disease destroys annually 125 boys and 104 girls in every 100,000 living of each sex at ages under five years, a large proportion of these deaths occurring within the first year of life. Tuberculous peritonitis is another member of this group which accounts for a large proportion of the mortality among young children, more than three-quarters of the deaths from this disease occurring in children of less than five years old. It is difficult to determine the actual mortality from this condition, partly because of want of uniformity in phraseology and partly because of exceptional difficulty of diagnosis in cases where, as is generally the case, necropsies are unobtainable. The indefinite and very objectionable term tabes mesenterica is still used by many practitioners to denote the present disease, although Dr. Tatham has ascertained that the use of this term has been long since abandoned by the medical staffs of the principal London hospitals. The mortality from tuberculous peritonitis is about the same as that from tuberculous meningitis; the former disease is, however, more destructive than the latter in the earlier months of life.

Unfortunately, no reduction can as yet be recorded in the steadily increasing fatality of cancer which has characterised the returns for many years past, the one hopeful sign at present discernible being that in the year 1904 there was no acceleration of the rate of increase of cancer mortality as compared with the average in recent previous years. The deaths from malignant disease in the year under notice were nearly 30,000 in number and exceeded the average number in the previous ten years corrected for increase of population. Among males the increase was equal to 13 per cent., against 6 per cent. among females. An idea of the suffering entailed by the prevalence of this terrible disease may be gathered from the fact that in the four years 1901–04 more than 5 per cent. of the deaths from all causes have resulted from it. The report shows the mortality from cancer in that section of the population which is almost exclusively liable to that disease, the rate being given for men and women separately at ages above 35 years; the fatal cases at earlier ages are also recorded but these are relatively few in number. After due correction for differences in age constitution of the population cancer is found to be more fatal in the town than in the country, although in the absence of such correction the country districts would appear to be the greatest sufferers. In this connexion Dr. Tatham draws attention to the impracticability in many cases of distributing to their former places of residence the deaths of cancer patients occurring in urban hospitals; he further remarks on the fallacy of assuming that the residence of a patient immediately before death had been also the place of origin of the fatal disease. The mortality from cancer is considerably higher in women than in men, the rate being 2970 per 1,000,000 annually in the former sex and 2271 per 1,000,000 in the latter. In both sexes the increase of cancer fatality has been greatest at the more advanced ages; it is also greater in the urban than in the rural districts.

Among the limited number of foreign countries furnishing returns the average death-rate from cancer exceeded that of England and Wales in three only—Switzerland, the Netherlands, and Norway. In the German and Austrian empires, in Italy, and in Servia the mortality rates were below that of this country. This was also the case in Ireland, New Zealand, the Australian colonies, Ceylon, and Jamaica. In all these countries except Ceylon, Tasmania, and Jamaica the proportional mortality from cancer has shown in recent years a tendency to increase.

In dealing with infantile mortality Dr. Tatham remarks that the subject of infant life preservation has in recent years achieved in the public mind a degree of importance that had never previously been attained since the establishment of civil registration in this country. Nevertheless, the loss of life in infancy is still enormous. According to the report it appears that nearly half the children dying under one year perish within three months of their birth, whilst of survivors in the second year of life there die more than twice as many as in any one of the three succeeding years. As children grow older their mortality declines. In the year 1904 the mortality from all causes in infants under one year was equal to 145 per 1000 births. In both sexes infantile mortality was about one-third higher in the urban districts than in the rural.

As in previous years, so in 1904 the loss of life among infants is mainly due to diarrhœal diseases, wasting diseases, convulsions, and diseases of the respiratory system. With few exceptions those countries in which a high birth-rate prevails are conspicuous for a high rate of mortality among infants; nevertheless, as in the case of France, a high rate of infantile mortality is sometimes coincident with a low birth-rate. Taking as a criterion the mortality in England and Wales it appears from the report that in seven European countries and in Ceylon, Jamaica, and Chili the rate of infantile mortality ranged from 3 to 117 per cent. above the English rate. In Japan it was nearly equal to, while in New Zealand, in Australia, in Scotland, in Ireland, and in six other European countries it was from 1 to 47 per cent. below, the English rate.

ASYLUM REPORTS.

Inverness District Asylum (Report for the year 1905).—The average number daily resident at this institution during the year ending May, 1905, was 654. The admissions numbered 140 and the discharges 96, of whom 79 had recovered, giving the high rate of 56·4 per cent. of the admissions, as compared with 43·8 per cent. for the previous year. The average recovery-rate for the Royal and district asylums of Scotland was 33 per cent. for 1904. The deaths numbered 52, which gives the low rate of 7·9 per cent. of the average number resident. This asylum receives patients from various counties in the Highlands, such as Inverness, Ross and Cromarty, and Sutherland. The medical superintendent, Dr. Robert B. Campbell, observes that many cases, from the northern districts more especially, are admitted in a hopeless condition, having been kept at home too long. The isolated position of many of the parishes, no doubt, accounts partly for the delay referred to, but the same tendency to keep cases at home as long as possible is noticeable in Wales as compared with England, and probably connotes a marked trait in the Celtic character. Amongst the cases admitted we note six over 70 years of age, whilst one old woman was over 90. 72 of the 140 admissions were considered hopeful in respect of recovery. As regards causation, 31 per cent. of the admissions showed "marked hereditary predisposition" to insanity, a low proportion in comparison with many other asylums, particularly when the district from which this asylum draws its inmates is considered. Alcoholic excess accounted for only 4 per cent. of the admissions. Amongst the discharges were 15 unrecovered cases who were allowed out under the supervision of their relatives or other guardians. Such patients are freely discharged from this asylum, whereby overcrowding is avoided. Dr. Campbell finds the crofters willing to receive these cases. This, of course, is the Scotch system of boarding out which has proved so advantageous. Of the deaths, 19 per cent. were due to pulmonary tuberculosis. The reports of two visits made by the Commissioners in Lunacy during the year are appended to the asylum report and these testify to the good work which is being done by the institution.

THE NATIONAL HOSPITAL FOR PARALYSIS AND EPILEPSY, QUEEN-SQUARE.—A Male Nurses' Association has been formed in connexion with this hospital, the membership of which is confined to male nurses who have been fully trained at the hospital. Masseurs are also sent out by the association who in all circumstances work under the direction of a medical man.

VACCINATION GRANTS.—Mr. J. D. Staple, public vaccinator for the Ashley district of the Bristol union, has been awarded the Local Government Board grant for successful vaccination for the sixth consecutive time.—Mr. A. G. B. Lory, public vaccinator for the Chudleigh district of the Newton Abbot union, has been awarded for the third time in succession by the Local Government Board the special grant for successful vaccination.

TESTS OF CERTAIN OPEN DOMESTIC GRATES.

[THIS REPORT IS SUPPLIED BY THE COAL SMOKE ABATEMENT SOCIETY.]

THE two series of tests which had in former years been carried out by the Coal Smoke Abatement Society, the details of which were published in THE LANCET of May 10th, 1902 (p. 1342), and Feb. 20th, 1904 (p. 529), respectively, created such interest both in the trades concerned and amongst the public that the society was anxious to secure an opportunity to carry out further tests on a more extensive scale. In the autumn of 1905 this opportunity arose through the kind initiative of Sir Henry Tanner, chief architect to H.M. Government. The large block of buildings situated at the corner of Great George-street and Parliament-street, Westminster, in course of construction under his superintendence, suggested the possibility of a further series of tests being carried out and he placed himself in communication with the Coal Smoke Abatement Society. As a result a subcommittee of the society, consisting of Dr. H. A. Des Voeux and Mr. W. H. Atkin Berry, F.R.I.B.A., the latter nominated as a member of the society by the Royal Institute of British Architects, was appointed to act in conjunction with Sir Henry Tanner in conducting the tests, and at a meeting of these gentlemen held in July, 1905, the following rules for the tests were drawn up:—

Regulations and Conditions to be observed by Manufacturers and others submitting Open Grates for Testing at the New Public Offices, Westminster, under the Control of the Commissioners of His Majesty's Works and the Coal Smoke Abatement Society.

1. The tests are intended to take place in October next and the grates should be delivered *free* not later than the 9th of that month, and owners will be advised when they are to send workmen to fix them in the fireplace openings appropriated to their several grates. The owners shall bear the expense of fixing and removing the grates.
2. The grates are to have a fire width not exceeding 20 inches across the front. The tests will be made with ordinary bituminous coal. The cost of fuel together with all other expenses attending the tests will be defrayed by the Commissioners.
3. Separate tests under similar conditions to the foregoing will also be made of grates suitable for anthracite coal and also of gas fires.
4. It is intended as far as may be practicable to conduct the whole of the tests at one time and on one floor, and in rooms of nearly equal dimensions.
5. No owners of grates, nor any representatives, will be permitted to attend the tests. Owners may make suggestions in regard to their own grates, but the examiners may use their discretion as to adopting such suggestions.
6. The points to be ascertained by these trials are: (1) prevention of smoke; (2) heating power; (3) economy of fuel; and (4) suitability for office and household purposes.
7. The report of the examiners must be accepted by the exhibitors; and the Commissioners and the Society, or either of them, shall be at liberty to publish the results at which they arrive.
8. Tests will be made only upon the foregoing terms and conditions, and submission for testing will be taken as acceptance of such terms and conditions by the owners of grates submitted.

H.M. Office of Works, Westminster, S.W., September, 1905.

Announcements of the proposed tests were forwarded, together with copies of the rules, to as many manufacturers of grates as were known to the Coal Smoke Abatement Society and invitations to manufacturers generally to submit grates for testing were issued by advertisement in trade and other journals. As a result, by the month of October, between 40 and 50 grates were submitted, and after preliminary inspection by Sir Henry Tanner and the members of the subcommittee, and the elimination of such as were judged unsuitable and of others which were practically duplicates of selected grates, 24 were chosen and afterwards fixed in the appointed rooms for testing.

Description of rooms.—The rooms were situated round an open square court at the south end of the new public buildings, all being on the mezzanine floor and averaging, as near as possible, 4000 cubic feet in size, thus affording favourable conditions for testing which would otherwise not easily be obtainable. The chimney flues were all of the same length and size—viz., 68 feet high and 11 inches in diameter. Each room had one window, which was kept closed, and one door, the latter being opened only for the purpose of the necessary ingress and egress in attending to, and watching, the grates. The doors and windows in all rooms were of the same size respectively. There was no furniture in the rooms, the walls were of brick left rough and unplastered, and the floors and ceilings were of rough concrete, no floor-boards being yet in position.

Dates of Tests.—The tests were conducted during the four days, Dec. 4th, 5th, 6th, and 7th, 1905.

Staff employed.—Mr. H. C. Burnard was chosen to superintend the staff and his duties were those of general supervisor—viz., to see that the fires were properly lighted and stoked, the temperatures correctly recorded, and the smoke charts properly filled in. Under him were eight assistants. Three (Smith, Fountain, and Andrews) attended to the weighing of the coal and wood, stoking the fires, and also recording the temperatures; and five (White, Bax, Moir, Dorrington, and Hudson) were appointed to register the smoke. Of these, four were stationed on the roof in separate shelters, each shelter being in clear view of the six chimneys which were allotted to each observer. The fifth assistant acted as relief when temporary release was required by one of the others.

Method of conducting the tests.—The grates were indicated only by distinctive numbers and the chimneys by distinctive letters of the alphabet painted on each flue pot. The names of the grates were unknown to the testers. The allotment of chimneys for observation by each of the smoke recorders was changed on each of the four days—the observers thus having a different set of chimneys every day. The fires were prepared first with a layer of chips, then of wood, and then of coal. The coal was weighed out and brought in carefully constructed trays, with two divisions, each division holding five pounds of coal. The fires were prepared each morning before 8 o'clock, at which hour they were lighted and were regulated throughout the day with the object of attaining and maintaining a temperature of 60° F. in the room or as near that as possible. The temperatures were recorded every half hour, one thermometer being placed in the corridor outside the rooms, and two in each of the rooms. Of the latter one was fixed at a distance of five feet in front of the fire and three feet above the floor and the other on the wall approximately 15 feet from the fire. The smoke emitted was registered according to the scale devised by the late Bryan Donkin and was carefully recorded on charts at regular intervals of five minutes throughout the hours of testing, a separate chart being used for each flue. At 4 P.M.—i.e., after eight hours—the fires were drawn and when cold the cinders were separated from the ashes and weighed, and the weight of cinders of each grate was recorded and was subtracted from the weight of coal placed on the fire. The wood supplied to each fire was also weighed and half its weight was added to the amount of coal, making a grand total of the fuel actually burned.

The following are descriptions of the grates tested, arranged in alphabetical order according to the name of the patentees or manufacturers, and they indicate for each grate respectively the amount of coal consumed less the amount of cinders (as explained above), the average temperature produced, and the average of smoke emitted. The descriptions are supplied by the manufacturers, but their inclusion in this report is not to be taken as implying confirmation by the examiners of the statements set forth in them. The results stated at the foot of each have been added by the examiners. The averages are taken for the whole period of four days of eight hours each, making 32 hours in all. It will be seen that the average of coal consumption varies from 19 to 41 lb. approximately; of temperature produced from 4° to 11° F., and of smoke emitted from 0·13 to 1·51.

Messrs. Barnard, Bishop, and Barnard, Limited.—A slow combustion grate, with solid brick bottom sloping to the front. The fire basket is formed entirely of firebrick five inches deep at the bottom bar and seven inches at the top bar, continued the full height to flue opening. All the bricks are removeable from the front when necessary without disturbing the others. A rack blower is provided, reaching to within two inches of the top bar, thus making it possible to obtain a bright fire soon after the putting on of fresh coals. The bars project slightly, fitting into slides so as to be easily removed.

Average amount of coal burnt, minus cinders, plus half the wood, 25·13 lb.; average temperature produced, 4·8° F.; average for smoke, 0·83.

Messrs. Alex. Boyd and Sons.—The "Cavendish" smokeless stove (Boyd's patent.)—This is claimed as a stove that will burn hard smokeless coal. The fuel basket is mounted so that it vibrates with a touch of the poker or of the foot, clearing itself of dust. The ashpit is inclosed to prevent dust escaping. A chimney is, of course, a necessity to carry away certain invisible products of combustion. A blower is used when first lighting and until the fire is really hot. This stove is intended for large halls or corridors rather than ordinary rooms. The necessity of having a flue pipe out in the room makes it rather unsightly for private use.

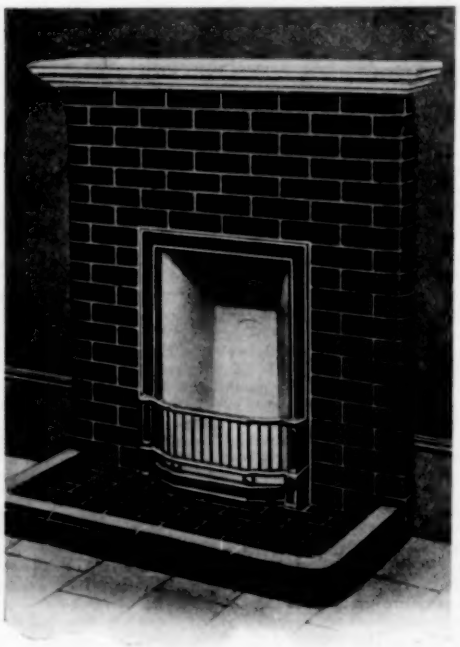
Coal, 33·07 lb. Temperature, 11·1° F. Smoke, 1·24.

Messrs. Bratt, Colbran, and Co.—The "Heaped Fire."—This not being a sunk fire, but in full view, and above the hearth level it is claimed that there is no danger from fire to hidden woodwork and that all through the day the hearth shall present a clean appearance. The fuel is heaped against the back brick. An economiser is provided to regulate the draught and when closed to make a slow-combustion stove. No underground channels for admission of air are necessary. The fire is constructed with a view to creating a draught suction and a steady incandescent fire.

Coal, 28·18 lb. Temperature, 6·8° F. Smoke, 0·87.

Messrs. Candy and Co., Limited.—The "Devon" fire (Fig. 1).—The Devon fire is constructed entirely of fireclay ware and is made for convenience in two pieces specially designed to radiate the heat most effectually towards the centre of the room; for this purpose the hearth is raised to the level of the fire. The lower portion of the fireplace has a solid bottom directly upon which the fire burns, there being no metal grid or air chamber beneath. It is claimed that the most perfect combustion is obtained by so placing the fire immediately on a solid block of fireclay and that with such an arrangement the question of ashes presents no difficulty whatever. The bottom may be made flat with detachable bars, as used in the present test, or may be hollow, in which case no bars are required. The illustration herewith shows a fire with flat bottom and detachable bars faced with a metal surround and moveable canopy, but these may be dispensed with and a simple brick arch substituted.

FIG. 1.



The "Devon" Fire.

Coal, 20·43 lb. Temperature, 7·4° F. Smoke, 0·79.

The Carron Company.—No. 301. Improved ventilating and smoke-consuming grate.—This grate is worked in a very simple manner which is effected by the use of flues constructed and filled with hot air on either side of the fire and superheated by close proximity with it. These flues, carried over the body of the grate, meet in the chimney immediately over the fire and at this point the superheated hot air is discharged and becomes the medium between the fire, the gases, and the smoke.

Coal, 34·68 lb. Temperature, 8·2° F. Smoke, 1·17.

Messrs. Chavasse and Kerr.—"Tropican" grate (patent).—This grate has firebrick backs with corrugated front, vertical construction, and a large radiating surface. The fire rests on a metal grating with a closed front and is raised about four inches above the hearth. When the front is closed air for combustion has access only to the top of the fire. To overcome stagnation a suction draught is introduced into the chimney through narrow passages formed in the firebrick. The air passing these passages is treated by coming in contact with the firebrick and is thus rarefied. The front heat generated in the fire is reserved for radiation, while a small quantity of heat behind which would otherwise be wasted, causes a steady and reliable draught from the room through the chimney.

Coal, 22·68 lb. Temperature, 6·6° F. Smoke, 0·97.

Messrs. J. and E. Corker, Limited.—The "Draw-well" grate (Fig. 3).—This grate is fitted with an adjustable canopy, semicircular and solid brick back, with solid brick back in front sloping inwards, the bottom forming a dish or basin with loose grate to lift out. There is a ventilating fret with pan attached. When the fire is out the bottom grate can be removed and the dust and ashes can then be carried away in the pan without causing them to fly about the room.

FIG. 2.

The "Draw-well" Grate.

Coal, 22·81 lb. Temperature, 8·3° F. Smoke, 1·02.

The Coalbrookdale Company, Limited.—The "Bostel" patent fireplace.—The "Bostel" patent fireplace is made so that the fire burns either sunk in the hearth or tilted up. The grate when tilted up induces a quick draught and when the fire has become a glowing mass the bars are lowered to the sunk position, bringing the fire well forward.

Coal, 41·43 lb. Temperature, 9° F. Smoke, 1·49.

Messrs. Doulton and Co., Limited.—Doulton's "Sunk Fire."—This fireplace is constructed with a fireclay well in which the fire burns on a removeable iron grid, this grid being raised to prevent the fire lying dead. At the back and sides of the well is a solid fireclay firebrick intended to radiate the heat downwards into the room. The fireclay well and back are intended to store the heat and to radiate it into the room.

Coal, 19·33 lb. Temperature, 7·4° F. Smoke, 1·14.

Downdraught Fireplace Company.—In the "Tiffin" interior a downdraught flue is carried up from the bottom of the fire on either side behind the usual firebrick cheeks. These flues are made to converge to a common centre immediately above the usual canopy and thence a single flue is carried round the oven or hot chamber, finally debouching behind the same into the chimney. On the underside of the oven where the converging flues meet a sliding soot door is fitted, reached for cleaning purposes by removing the adjustable canopy in the ordinary way. The downdraught flue is regulated by a damper fitted at the junction of the same with the chimney and this is actuated by a damper rod passing through the front of the stove.

Coal, 23·18 lb. Temperature, 7·3° F. Smoke, 1·0.

The Eagle Range and Gas Stove Company, Limited.—The "Premier Gold Medal Eagle Grate."—This grate was designed as an improvement on the old pattern "Eagle" grate. It is fitted with four sliding doors, two above the front bars and two on a level with the same. The object of the top sliding doors is to enable a bright fire to be obtained a few minutes after lighting or to revive a dull fire after having been left for some hours. The object of the bottom doors is to obtain slow combustion by drawing them in front of the bars and so exclude any air from the fire; Another special feature is that the front bars can be lowered so that the greatest amount of heat can be obtained from the hottest part of the fire. The top bars can also be entirely removed so that the grate may be used for burning logs, &c. The bricks are all made of a special shape with the intention that the heat shall be thrown into the room.

Coal, 25·18 lb. Temperature, 6·3° F. Smoke, 0·79.

The Falkirk Iron Company.—No. 593 "Interior" grate.—This "Interior" is an economic barless grate intended to effect complete combustion and economy of fuel. It is fitted with a hinged adjustable canopy but is easily removeable for access to chimney for sweeping. The bottom is concave in shape, of firebrick at back and cast-iron

grating in front, and forms a well for the fire. The roll front is intended to prevent the fuel from falling on to the hearth. The back is composed of firebrick slabs fitted in cast-iron frames and is easily removed from the front when required without disturbing the grate.

Coal, 20·81 lb. Temperature, 6·6° F. Smoke, 1·13.

Messrs. Hattersley Brothers, Limited—The "Rage" grate.—This grate is constructed with five firebricks removeable from the front without unfixing the grate. The two sides, the back, the top, and the front are fitted in metal casing and cannot get out of position; there is also a strong metal bottom grating, draw-out ashpan, and bar-less front with moveable guard constructed with "hit and miss grid" to control the fire. The canopy swinging upon pivots is adjustable to several positions and is removeable for the purpose of sweeping the main flue.

Coal, 28·43 lb. Temperature, 6·5° F. Smoke, 1·14.

The London Warming and Ventilating Company, Limited.—The "Florence" patent grate with patent automatic shaking bars and combination canopy regulator.—This grate has a self-contained auxiliary flue controlled by a damper connected to the adjustable canopy. It is claimed that when the canopy is closed and the back flue is brought into use the smoke is drawn through a fire to a point where the heat is practically incandescent and is consumed to an appreciable extent. The automatic shaking bars consist of a number of separate bars loosely mounted on a square shaft and made abnormally deep in the body intended to heat the ascending air currents as the weight of coal varies in the different bars; the bars are intended to rock and clear the fire of ashes and dust, thus allowing a continuous current of air at a high temperature to pass through the fuel and cause it to burn brightly even in small quantities.

Coal, 27·13 lb. Temperature, 9·3° F. Smoke, 1·01.

Messrs. Longden and Co.—This grate has a firebrick deflector or knee-brick of a special section, calculated in relation to the bars of the fire and its consequently enlarged heating capacity. This brick by its reaction throws the heat of the fire forward and downward. The economiser below the fire forms a regulator for the draught.

Coal, 27·51 lb. Temperature, 8·8° F. Smoke, 0·92.

Messrs. O'Brien, Thomas, and Co.—The "Aureole" patent grate.—This grate is constructed with a firebox of loose firebricks encased in a metal frame with steel vertical spindle bars. The special feature of the grate is the patent fire regulator which is composed of a blower and a damper; the one part regulates the air passing into, through, and above the fire, and the other as it passes into the chimney, thus providing a means of regulating the combustion of the fuel. The canopy can be adjusted so that the space between the edge of the top bar and the bottom edge of the canopy is either four and a half inches or nine inches, and the regulator is adjustable so as to leave the opening into the flue from three-eighths of an inch when down to the full size of the flap when opened or at any intermediate point.

Coal, 27·48 lb. Temperature, 8·6° F. Smoke, 1·07.

Messrs. Alexander Ritchie and Co.—The "Castle Baynard" barless stove.—This stove is constructed without front bars. The fire is provided with a loose hanging plate at the back of the moveable canopy, the object of which is to allow a greater flue area at the top of the stove which may be partially reduced as desired without fear of the grate smoking. This plate forms two flues for the passage of smoke into the chimney with a view to assist the ventilation of the room without increasing the draught of the stove. When the canopy and plate are removed complete access to the chimney for fixing and sweeping purposes is provided. The scoop-shaped firebox projects towards the room with the firebrick lining hanging over the fire, the object sought being to secure the full value of heat in the room. It is claimed that this form of firebox causes the fuel to collect in the centre of the grate as it burns down.

Coal, 32·43 lb. Temperature, 8·9° F. Smoke, 1·04.

The Sinclair Iron Company, Limited.—The "Roseneath" open fire-grate.—This grate is constructed so that it shall wholly project into the apartment and radiate heat into the room from the side bricks as well as from the back brick. The top of the back brick is brought very close to the sloping cast-iron front of the grate, so that the orifice into the chimney is the whole width of the grate but very narrow back to front. The main communication between the fire-grate and the chimney is by means of a series of channels cut in the top of the back brick, and through these channels the gases escape into the nozzle and thence into the chimney.

Coal, 27·83 lb. Temperature, 5·6° F. Smoke, 0·85.

Messrs. Wilmer and Sons.—Boad's patent sunk fire-grate.—The sides and back of this stove are formed of six fireclay slabs standing upon a base brick, the back brick inclining forward with the object of deflecting the heat out into the room. These bricks are of extra height, being 36 inches from the base brick to the opening into the flue. The opening into the flue has a horizontal direction, the cold air passing through an iron plate at the highest point of the arch, with the object of causing the hot air to be diffused into the room. It is claimed that the fireclay base brick, upon which the loose bottom grating stands, becomes superheated and renders more complete combustion of the fuel. The bottom grating is constructed so that the ashes can be readily removed at any time.

Coal, 29·9 lb. Temperature, 7·9° F. Smoke, 1·06.

Messrs. George Wright, Limited.—The "Tandem" stove.—In this grate there are three flues behind the back which open into the ashpit at the bottom and the chimney at the top. There is a special gilled dead plate bottom, closed at the front, and a special controlled register door. The fire is lighted in the ordinary way with the usual smoke exit to the chimney. When the fire is well alight the register door is closed and it is claimed that the smoke is forced to descend the centre flue behind the stove-back to the ashpit, thence passing through the gills of the dead plate up the side flues behind the stove-back to the chimney.

Coal, 28·13 lb. Temperature, 6·2° F. Smoke, 1·2.

Messrs. Yates Haywood.—The "Bonfire" barless stove.—The fire of this stove is raised very little above the level of the hearth but sufficiently so to admit of the easy removal of the ashes when cleaning. It is "barless" and is entirely lined with fire lumps which can be renewed from the front without disturbing the stove. A "hit and miss" ventilator regulates the admission of air to the bottom grate. Through a space at the back of the fire lump superheated air passes from the ashpit and enters above the fire, this, and the form of the casing, which inclines forward, having for their object the securing of a more perfect combustion of gases from the fuel. Two other spaces having outlets at the top of the inclined brick perform a similar duty as the smoke leaves the stove. The side ducts or tubes on the right and left of the stove are fed by air drawn through the perforation at the bottom of the tiled slabs, with a view to causing it to become rarefied by contact with the sides of the stove and so to assist in securing a steady draught up the flue.

Coal, 26·68 lb. Temperature, 7·4° F. Smoke, 0·81.

TABLE I.—*Showing Results of Tests on 24 Open Grates burning Bituminous Coal.*

Names of firms (given in alphabetical order).	Average amount of coal, less cinders, plus half wood, in pounds.	Temperatures (degrees Fahrenheit). I. Thermometer in corridor.	II. Thermometer in room.	Difference between I. and II.	Radiation.	Smoke average.
Barnard, Bishop, and Barnard	25·13	45·4	50·2	4·8	72·9	0·83
Boyd and Sons	33·07	,,	56·5	11·1	78·4	1·24
Bratt, Colbran, and Co. ...	28·18	,,	52·2	6·8	76·8	0·87
Candy and Co.	20·43	,,	52·8	7·4	71·6	0·79
Carron Co. B.	34·68	,,	53·6	8·2	80·03	1·17
Ditto. C.	32·06	,,	51·8	6·4	77·0	1·11
Chavasse and Kerr	22·68	,,	52·0	6·6	71·7	0·97
Corker, J. and R.	22·81	,,	53·7	8·3	71·8	1·02
Coalbrookdale Co. B. ...	41·43	,,	54·4	9·0	82·5	1·49
Ditto. C. ...	21·73	,,	51·8	6·4	69·2	1·32
Doulton and Co.	19·33	,,	52·8	7·4	68·1	1·14
Downdraught Fireplace Co.	23·18	,,	52·7	7·3	73·6	1·05
Eagle Range Co.	25·18	,,	51·7	6·3	71·9	0·79
Falkirk Iron Co.	20·81	,,	52·0	6·6	74·2	1·13
Hattersley Bros.	28·43	,,	51·9	6·5	75·4	1·14
London Warming and Ventilating Co. A. ...	27·13	,,	54·7	9·3	74·0	1·01
Ditto. B. ...	36·43	,,	55·6	10·2	82·5	1·0
Longden and Co.	27·51	,,	54·2	8·8	76·7	0·92
O'Brien, Thomas, and Co.	27·48	,,	54·0	8·6	78·6	1·07
Ritchie and Co.	32·43	,,	54·3	8·9	74·1	1·04
Sinclair Iron Co.	27·83	,,	51·0	5·6	72·5	0·85
Wilmer and Sons	29·9	,,	53·3	7·9	78·8	1·06
Geo. Wright and Co., Ltd.	28·13	,,	51·6	6·2	76·8	1·2
Yates Haywood and Co. ...	26·68	,,	52·8	7·4	74·8	0·81

Upon the result obtained the examiners selected the following grates for further test—viz., those of Messrs. Candy, Messrs. J. and R. Corker, and the London Warming and Ventilating Company (A.). The amount of coal consumed by these grates was found to be moderate in comparative proportion with temperature obtained; the fires were bright and clear and the smoke emitted bore favourable comparison with the results recorded for the other grates.

Arrangements were now made for testing the remaining 12 of the total number of grates selected from those submitted. They were fixed in 12 of the rooms used for the first set and the tests were conducted in a precisely similar manner. (See Table II.)

Date of tests.—The tests were carried out on Jan. 2nd, 3rd, 4th, and 5th, 1906.

The following descriptions (arranged in alphabetical order) and the results attained by the examiners followed the lines of the previous ones.

The "Arnott" grate.—The "Arnott" grate was invented more than half a century ago by Dr. Neil Arnott. Suppose the bottom bars—viz., the bars on which the fuel lies—to be removed from an ordinary grate and an open-topped cast-iron box, the top of which is the same size as the bottom of the grate, to be placed under the grate, the grate being raised half as high again as usual to give room for the box, which is 12 inches deep. Coal put in at the top of the grate will at first fall to the bottom of the box and if enough is put in there will be a continuous pile of coal from the bottom of the box to the top of the grate. This column of coal is lighted an inch or two from the top in the usual way with paper and a few sticks of wood and it is claimed that the upper few inches of fuel are rapidly blown into a state of active combustion as the bottom of the flue-pipe is very little above the top of the fuel, thereby causing a strong draught.

Coal, 31·13 lb. Temperature, 9·6° F. Smoke, 1·13.

Bell's patent basket fire-grate.—In this stove the brick entirely covers the fire and the shape of the brick insures, with reasonable care in setting, an absolutely solid backing. The hot-air chamber formed by the platform and ashpan is intended to promote combustion so as to leave no cinders. The platform is intended to form a safety guard and to shield the fire from a too rapid intake of air, also to preserve a clean hearth. The firebrick back is in one piece and being filled solid behind and wedge-stapled on to the metal front cannot shift when fractured by expansion and contraction.

Coal, 38·63 lb. Temperature, 9·7° F. Smoke, 1·28.

Chavasse's patent fire-grate.—This grate is composed of two vents, one frame, one fire-bottom, two fireclay cheeks, one fireclay back, one fireclay sloping top, or radiator. The object sought is that the air shall pass out of the room through the vents on each side of the grate and along a rebate or chamber in the back of the cheeks. The cheeks being hot from the fire the air becomes rarefied and passes up the rebates in the back of the fireclay back; at the top of the fireclay back the rarefied air passes out just over the fire and under the sloping top or radiator and the air at this point helps to consume the carbon.

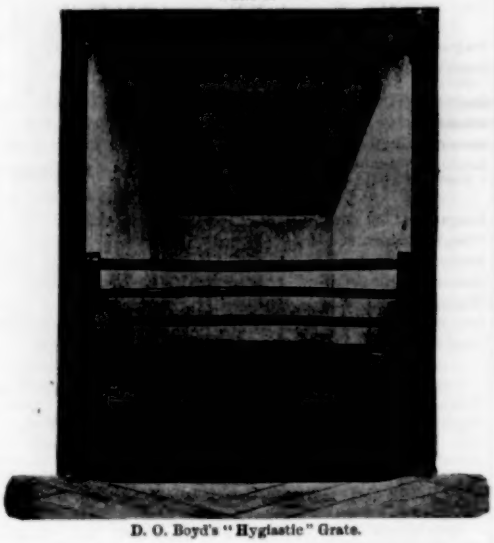
Coal, 21·43 lb. Temperature, 5·1° F. Smoke, 1·40.

The "Firth" grate.—The air is supplied principally from the back and sides, both inside and out, which are perforated and ribbed on the inside, having slotted openings in the bottom grate so as to allow the air to have free passage around the fire through the openings and up between the ribs. It is claimed for this grate that there is no rush of air from the front and that the moisture in the coal quietly ascends as steam, causing the light and heavy carburetted hydrogen gases to rise and to be met by from eight to ten times the volume of air which they require for the firing or explosive point, and burn with a bright flame, during which time the coal is coked, the impurities in the coal dropping to the bottom, none of them being driven into the atmosphere, and an incandescent fire being then formed.

Coal, 26·23 lb. Temperature, 3 1° F. Smoke, 0·66.

Messrs. Hendry and Pattisson.—A. D. O. Boyd's improved "Hygiastic" warm-air grate. (*Fig.* 3.)—These grates are supplied with fresh air from the outside with the object of circulating round the back of the grate and entering the room through a grating over the fire in a continuous stream, thus keeping the

FIG. 3.



D. O. Boyd's "Hygiastic" Grate.

temperature even and ventilating the room by expelling the foul air. The cast-iron fronts are fitted with canopy or without, as preferred. The lumps are of fireclay and are sloped to assist radiation, and being built up of specially unbreakable joints it is claimed that they will not crack through unequal expansion or intense heat. They are encased in a riveted steel back which is carried up and finished round the flue so as to simplify and lessen the cost of fixing. There are regulating valves for the smoke and air and a box ashpan under the fire for the purpose of keeping the hearth clean and economising fuel. The bars slope inwards with the intention of deflecting air into the fuel and preventing cinders or coal from dropping out.

Coal, 28·3 lb. Temperature, 7·2° F. Smoke, 0·13.

Messrs. Hendry and Pattisson.—B. No. 2, D. O. Boyd's improved "Non-warm Air grate."—The cast-iron fronts of this grate are fitted with canopy, or without as preferred. The lumps are of the best Stourbridge fireclay and are built up with extra unbreakable joints and secured to the front with wrought iron straps. They are sloped with the object of assisting radiation and it is claimed that they will not crack through unequal expansion or intense heat. There is a regulating valve for the smoke and a box ashpan under the fire for the purpose of keeping the hearth clean and economising fuel when slow combustion is required. The bars slope inwards with the intention of deflecting air into the fuel and preventing cinders or coal from dropping out. The cost of fixing these grates is very small.

Coal, 33·18 lb. Temperature, 8·8° F. Smoke, 1·22.

The Nautilus Fire and Heating Company.—The "Nautilus" grate is a firebrick lined, slow combustion dog stove, and burns coal, coke, or wood. The products of combustion rise from the fire and pass off through the exit nozzles into the chimney. Heat is radiated directly from the open fire and indirectly from the whole exterior of the grate, particularly the hood. A register door for sweeping inclosed the chimney immediately over the grate, with the object of obviating any waste of heat, and provision is made for regulating the draught from maximum to minimum by means of dampers on each side of the grate. The ashes fall through the grating into the concealed ashpan, thus allowing dust to fall upon the hearth and insuring greater safety.

Coal, 34·93 lb. Temperature, 6° F. Smoke, 1·22.

Messrs. Alexander Ritchie and Co.—"*Castle Baynard*" "*level.*"—In this grate the front is formed of tiles which may be of any colour; the back is formed of fireclay; this hangs over the coals to cause the heat to be radiated into the room, especially on to the floor. The fuel is placed on a grating raised about four inches above the level of the floor with the intention of obviating the use of a raised hearth or an ashpit sunk below the floor level. The grating on which the coal lies permits of the ashes being cleared while the fire is burning; the ashes are received in a tray underneath and behind the moveable ashguard which also regulates the supply of air below the bars. The hearth, which is flush with the floor, becomes heated.

Coal, 18·63 lb. Temperature, 4·7° F. Smoke, 1·45.

Messrs. Smith and Wellstood.—An open fire-grate, with cast-iron front; the fire chamber is 18 inches wide and is lined at the sides and back with firebrick, with front bars and steel vertical bars. An auxiliary flue is made through the lower portion of the back brick, passing up the back of this brick and entering the main flue behind the canopy. This flue is intended to draw the smoke from a newly stoked fire, partly through the incandescent fuel, there to be ignited and heat the back of the brick. A moveable canopy opens and closes this flue as required. When the canopy is open the flames pass up the front of the back brick as with an ordinary grate.

Coal, 26·43 lb. Temperature, 7·0° F. Smoke, 1·05.

The Teale Fireplace Company.—B. The Teale "Economiser Popular Type."—This grate has a firebrick back in four parts, readily replaced from the front, and inclosed in a double sheet steel casing forming an air chamber, air being drawn from outside and discharged from the grating above. The outlet for warm air is controlled by means of a louvre. In the case of the fireplace submitted for test, air had to be drawn from the room as it was not possible to get it direct from the outside. This fireplace is arranged with the object of preventing the smoke leaking into the air chamber.

Coal 20·93 lb. Temperature, 5·9° F. Smoke, 1·49.

Messrs. Wilson and Smith.—Patent "Peveril" stove.—The patent "Peveril" stove is constructed with a double canopy, one behind the other, and the back one is opened or closed by the wings at the back of the front canopy, pressing against the lower portion of the plate at the back. A plate divides the back flue into two parts and gives increased flue area. It is intended to prevent smoking and that any smoke missing the back flue shall be caught in the wide mouth of the front flue, and by this arrangement the combustion be regulated to any degree. There are no front bars.

Coal, 34·9 lb. Temperature, 6·3° F. Smoke, 1·11.

Messrs. Yates Haywood.—No. 1902, a heating and ventilating register stove.—This stove is constructed with a horizontally gilled back, which is inclosed with sheet iron, forming a warm-air chamber. It is entirely self contained, requiring no special fixing. Air is admitted to the chamber through the perforations, or fresh air from the outside is brought by a duct and enters at the base. It then is intended to pass backwards and forwards between the gills and thereby to become warmed and afterwards emitted through a "hit and miss" ventilator into the room. Through a space at the back of the fire lump superheated air is intended to be drawn from underneath the bottom grate and to enter immediately over the fire and assist in the combustion of fuel and smoke. The back slopes forward over the fire. The grate is lined throughout with fire lumps which can be renewed from the front without disturbing the stove.

Coal, 23·9 lb. Temperature, 5·2° F. Smoke, 1·48.

TABLE II.—*Showing Results of Tests on 12 Open Grates burning Bituminous Coal.*

Names of firms (given in alphabetical order).	Average amount of coal, less cinders, plus half wood, in pounds.	Temperatures (degrees Fahrenheit). I. Thermometer in corridor.	II. Thermometer in room.	Difference between I. and II.	Radiation.	Smoke average.
Arnott (J. Horsfall)	31·13	44·9	54·5	9·6	83·6	1·13
Bell and Co.	38·63	,,	54·6	9·7	91·5	1·28
Chavasse, J. J.	21·43	,,	50·0	5·1	72·3	1·40
Firth	26·23	,,	48·0	3·1	78·0	0·66
Hendry and Pattisson. A.	28·3	,,	52·1	7·2	90·2	0·13
Ditto. B.	33·18	,,	53·7	8·8	91·9	1·22
Nautilus Fire & Heating Co.	34·93	,,	50·9	6·0	76·2	1·22
Ritchie and Co.	18·63	,,	49·6	4·7	76·4	1·45
Smith and Wellstood ...	26·43	,,	52·0	7·0	84·6	1·05
Teale Fireplace Co. A. ...	24·18	,,	48·3	3·4	72·1	1·28
Ditto. B. ...	20·93	,,	50·8	5·9	76·0	1·49
Wilson and Smith	34·9	,,	51·2	6·3	82·9	1·11
Yates Haywood and Co. ...	23·9	,,	50·1	5·2	76·9	1·48

Upon the results obtained the examiners selected three grates to be tested again, inasmuch, however, as the grate submitted by the London Warming and Ventilating Company and that sent by Messrs. Smith and Wellstood were found to be identical, the latter was not subjected to this test.

Dates of tests.—The tests were carried out on Jan. 30th and 31st and Feb. 1st and 5th. The results are set out in Table III.

TABLE III.—*Showing Results obtained on Re-testing Five Selected Grates.*

Names of firms (given in alphabetical order).	Amount of coal, less cinders, plus half wood, in pounds.	Ashes in pounds.	Stoking.	Temperatures (degrees Fahrenheit). I. Thermometer in passage.	II. Thermometer in room.	Difference between I. and II.	Radiation.	Smoke.
Candy and Co. ...	25·25	2·6	4·0	43·9	51·7	7 8	84·3	0·85
Corker, J. and R. ...	26·0	1·3	4 0	,,	52 75	8·8	70·3	0·70
Hendry and Pattison (Boyd)	35·9	2 25	5·75	,,	55·4	11·5	98·1	0 88
London Warming and Ventilating Co.	25·75	1·9	4·2	,,	50 6	6·7	82·2	0·79
Teale Fireplace Co.	28 25	1·3	4·0	,,	52·6	8·7	83 9	0·84

On the suggestion of Mr. A. C. Ackermann, M.I.C.E., the grates in the final series were submitted to the carbon dioxide test with the object of ascertaining their efficiency as coal-burning machines for producing heat. For this test the subcommittee secured the services of Dr. J. S. Owens, A.M.I.C.E., whose report is as follows :—

REPORT UPON THE THERMAL EFFICIENCY OF FIVE DOMESTIC FIRE-GRATES TESTED ON FEB. 5TH, 1906, AT THE REQUEST OF DR. DES VŒUX.

The following were the grates tested, which will be referred to by their respective letters :—

A.—Teale Fireplace Company ... ... Room 11B.
B.—W. B. Clarke and Co. ... ... ,, 12A.
C.—D. O. Boyd's Improved "Hygiastic" Grate, by Hendry and Pattisson... ... ... ,, 12B.
D.—Candy and Co. ... ... ,, 13B.
E.—London Warming and Ventilating Co. ... ,, 14C.

The accompanying table (Table IV.) exhibits the results of these tests which were continued for a period of eight hours simultaneously on each grate.

It will be seen that the grates showed in every case an extremely low efficiency when considered as a means of heating the air of a room. This efficiency is, as shown in Table IV., the percentage of the total heat or calorific value of the coal burnt which is actually utilised in warming the air passed through the room. The results show that less than 7 per cent. of the total heat of the coal is thus utilised. In the case of steam boilers from 70 to 75 per cent. of the calorific value of the coal is transferred to the water. Hence the efficiency of steam boilers is over ten times as great as domestic fire-grates.

Considering the two best grates, C and D, the quantity of heat given to the walls, chiefly by radiation, is very great, amounting to over 79 per cent. in C and 76 per cent. in D; but it must not be thought that this is all lost heat. It is well known that we feel warm in a room with warm walls in which the air is cold but we feel cold in a room with cold walls in which the air may be warm. This is largely because air is such a bad conductor of heat and because we are very sensitive to radiant heat.

Though a search has been made for similar data with which to compare the results of these tests, the only figures I have been able to obtain were kindly given me by Mr. Ackermann. He carried out some very complete tests of a hot water warming plant at a large London hospital, the results of which showed that 22 per cent. of the heat discharged from the radiators was utilised in warming the air of the room, while the remaining 78 per cent. was radiated into the walls and through the windows. Thus it will be seen that the percentage of heat taken by the walls was practically the same for the radiators and open fires, while the efficiency of the radiators in warming the air of the room was about three times as great as that of the open fires. If, however, we consider the efficiency of the hot water plant, taking into account all heat losses from the furnace to the radiators, the figures become more alike, being 8 per cent. of the heat of the fuel burnt for the hot water plant, as against 7 per cent. for the open fires. In the apparatus which Mr. Ackermann tested the distance from the source of heat to the radiators was abnormally great and consequently a very large quantity of heat was lost in transit.

In the case of the open fires the chimney losses, 14 to 16 per cent., are about twice as great as compared with the efficiency. In the case of the radiators, there are no chimney losses, the *rooms* being the equivalent of the *chimneys and rooms* together in the case of the open fires.

If for the open fires C and D we add the chimney losses to the heat given to the air of the room, we have, say, 21 per cent. and 23 per cent. as the combined efficiency, which compares very well with the 22 per cent. which Mr. Ackermann obtained in the case of radiators.

The details of most importance in Table IV. :—

No. 5, showing total ventilating effect.

No. 6, comparative ventilating effects per pound of coal burnt.

No. 13, showing the efficiency of grate.

No. 14, showing the percentage of heat lost or rather used in ventilating room.

No. 15, the percentage of heat used in warming walls of house. This heat is also doing useful work, keeping walls free from damp and radiating back into the room as pointed out above.

The meteorological conditions and the hygrometric conditions of the air during the test are shown in Tables V. and VI.

JOHN S. OWENS, M.D., A.M. Inst. C.E., &c.

TABLE IV.—*Showing Results obtained in testing Thermal Efficiency of Five Open Grates.*

No.	—	Reference letter of grate and name of maker. A. Teale Fireplace Co. Room 11B.	B. W. B. Clarke and Co. Room 12A.	C. D. O. Boyd's Improved "Hygiastic." Hendry and Pattisson. Room 12B.	D. Candy and Co. Room 13B.	E. London Warming and Ventilating Co. Room 14C.
1	Coal burnt in pounds per hour during test.	2½	3½	3½	3½	3½
2	Carbon burnt in pounds per hour during test.	2	2·5	3	2·5	2·5
3	Calorific value of coal burnt per hour in British thermal units.	36,900	46,125	55,350	46,125	46,125
4	Mean steady temperature of flue gases.	84° F.	86° F.	100° F.	90° F.	84° F.
5	Cubic feet of flue gases passed per hour up chimney.	6883	7934	9738	10,987	6320
6	Cubic feet of air passed per hour up chimney per pound of coal burnt.	2753	2539	2597	3516	2022
7	Mean rise of temperature of flue gases above room temperature.	30° F.	30° F.	41° F.	36° F.	33° F.
8	Heat lost in flue gases per hour in British thermal units.	4002	4620	7749	7668	4043
9	Mean steady temperature of room.	54° F.	56° F.	59° F.	54° F.	51° F.
10	Mean rise of temperature of air passed through room from inlet temperature.	14° F.	16° F.	20° F.	14° F.	11° F.
11	Heat used in warming air passed through the room per hour in British thermal units.	1868	2464	3780	2982	1347
12	Contents of room in cubic feet.	3871	3974	3926	3981	4216
13	Efficiency—that is, the percentage of the total heat of coal burnt which is given to the air passed through the room.	5 06	5·33	6 83	6 46	2·92
14	Percentage of total heat of coal burnt which is lost in the flue gases.	10·84	10·01	14·00	16·62	8·77
15	Percentage of total heat of coal burnt which is given to walls &c., of room, chiefly by radiation.	84·10	84·66	79·17	76·92	88·31

TABLE V.—*Meteorological Conditions in London on Feb. 5th, 1906, during the progress of the grate tests.*

Barometer	8 A.M., 30·2. 8 P.M., 30·26.
Thermometer	Maximum, 41° F. Minimum, 33° F.
Wind	N.E.; light.
Weather	Fine.

TABLE VI.—*The Hygrometric Conditions of the Air in London during the Progress of the Tests (taken from* The Times.)

Time.	Temperature		Tension of vapour.	Weight of vapour in 10 cubic feet of air.	Humidity. Saturation = 100.
	Air.	Dew point.			
Noon	38° F.	28° F.	0·153 inch.	18 grains.	67 per cent.
6 P.M. ...	39°	30°	0·167 ,,	20 ,,	71 ,,
Midnight...	36°	22°	0·118 ,,	14 ,,	56 ,,

As a final result of the whole of the tests before described the examiners find that of the grates submitted those of Messrs. J. and R. Corker, Messrs. Candy and Co., and Messrs. Hendry and Pattisson (Boyd's) are the best, showing practically equal results, and that the "Florence" (the London Warming and Ventilating Company) very nearly approximates to them.

It must be remembered that all these grates were worked with the object of obtaining their utmost capacity and not under the conditions obtaining in an ordinary room which would generally be more variable. The fires were not allowed to burn low, therefore the amount of smoke emitted in these tests was the minimum that can be expected.

It will be observed that the meteorological conditions during the period of testing were highly favourable.

THE

FIFTEENTH INTERNATIONAL CONGRESS OF MEDICINE.

Held at Lisbon, April 19th—April 26th, 1906.

THE SECTIONS.

ANATOMY.

Professor NATHAN LOEWENTHAL (Lausanne) contributed a paper upon—

A System of Histological, Cytological, and Embryological Nomenclature for the Entire Animal Kingdom.

The preparation of this paper which, as the title implies, is mainly concerned with microscopic anatomy, must have been a work of immense labour and research. The principal part of it is a vocabulary which fills 94 large pages and is arranged in double columns (one French and one German) on each page. More than 3000 various structures must therefore have their equivalent names given in the two languages. Some of the principal general headings into which the vocabulary is subdivided are as follows: Constituent parts of cells, epithelium of different kinds, glands, nerve tissue, muscular tissue, blood, lymph, connective tissue (including serous, mucous, and synovial membranes, fat, tendons, and nerve trunks), cartilage, bone, dental tissue, lympho-adenoid tissue, blood-vessels, lymphatic system, tegumentary system of animal types from the mammalia to the lamprey, and finally organs of special sense. The vocabulary proper is followed by about 24 pages of explanatory remarks, among which is inserted a page of diagrams illustrating various types of glands. In these remarks many suggestions are made with a view to secure uniformity of nomenclature. As an example of the unnecessary multiplicity of expressions it is pointed out that there are five synonyms for the striæ of muscular fibre. Under the heading of Blood the author says that in the most recent literature a distinction is made between leucocytes and lymphocytes but he doubts if the distinction is justifiable. He objects to the terms leucocytes or white corpuscles (*globules blancs*) because these cells are no whiter than many others and he suggests the designation lymphocytes as being preferable. Referring to the blood platelets (*plaquettes sanguines ou de Bizzozero, hématoblastes de Hayem*), he says that they are called thrombocytes in the most recent literature; they are supposed to have some influence on the coagulation of the blood; their origin and histological position are uncertain.

NEUROLOGY, PSYCHIATRY, AND CRIMINAL ANTHROPOLOGY.

Dr. DAVID FERRIER (London) read a paper upon

The Nature and Physiological Pathology of Tabes Dorsalis.

After giving a brief summary of the morbid appearances seen in tabes dorsalis he proceeded to consider various theories of the tabetic process, such as that it depended on primary interstitial necrosis, on posterior spinal meningitis, on syphilitic disease of the posterior lymphatic system of the spinal cord, and on general syphilosis of the meninges. After showing that valid objections could be raised to each of these theories he said that it seemed better to adopt the hypothesis of Thomas and Hauser that the fundamental lesion of tabes dorsalis was a dystrophy, similar to that produced by certain toxic agents, affecting the sensory protoneuron as a whole and leading to degeneration of its outlying parts, of which the central intramedullary prolongations were the most vulnerable. The essential factor in the degeneration of the intramedullary prolongations of the neuron seemed to be the absence of the neurilemma sheath in the intramedullary continuations of the posterior root fibres. The point where the fibres lost their neurilemma sheaths was, as has been emphasised by Orr and Rows, just after they have penetrated the pia mater. The hypothesis of a dystrophy of the sensory protoneuron as the fundamental lesion of tabes dorsalis rendered it easy to understand how not only the sensory protoneuron but other neurons in the sympathetic and elsewhere might be attacked in a similar manner. Dr. Ferrier then expressed his belief in the essential pathological identity of tabes dorsalis and general paralysis, both of them being, in his opinion, merely different aspects of the same polymorphic disease. Both were tabetic or wasting diseases, the dystrophy affecting mainly the sensory protoneuron in the one case and the psychomotor neuron in the other. Not infrequently the two affections were combined in the so-called tabo-paralysis. Clinically some of the most characteristic symptoms were common to both—notably the Argyll-Robertson pupil—and in both there was the same lymphocytosis of the cerebro-spinal fluid. The underlying etiological factors were the same—namely, antecedent syphilitic infection—and in both of them the development of the symptoms was on an average from seven to ten years after the date of the primary sore. It would, therefore, in his opinion, be advisable to recognise the identity of tabes dorsalis and general paralysis in medical terminology and to call them by the generic name tabes, classing them specifically as cerebral tabes (general paralysis), spinal tabes (tabes dorsalis, locomotor ataxy), and cerebro-spinal tabes (tabo-paralysis), according as the disease affected the brain, the spinal cord, or both conjointly. With regard to the physiological pathology of tabes dorsalis Dr. Ferrier confined himself to the consideration of one of its most characteristic features—namely, ataxy. In tabes dorsalis the motor neuron was intact, the electrical reactions of the muscles were normal, and their dynamic strength was not necessarily impaired. The paths of impulse from the cortical centres were free from degeneration and so also were the efferent tracts from the cerebellum. The lesion was therefore on the afferent or sensory side of the apparatus of movement and was manifested by loss of knee-jerk and by various forms of sensory perversion or impairment showing themselves in the skin, bones, joints, tendons, and muscles.

Dr. J. F. SUTHERLAND, deputy commissioner in lunacy for Scotland, read a paper upon

The Prophylaxis and Treatment of Criminal Recidivists.

He said that recidivism was the French-coined term most appropriate to express the persistent reiterated lapses of the same individual both among criminals charged with serious attacks on person and property and also among petty offenders whose delinquencies or misdemeanours were drunkenness, breaches of the peace, public disorder, prostitution, and vagrancy. The former were aggressive, noxious, anti-social, and to a slight extent industrious and productive; the latter, as a rule, were passive, idle, debauched, parasitic, and unproductive. The two types were quite distinct and there was little or no intermingling, for the recidivist engaging in the major crimes did not become a recidivist in the minor and petty offender class, and *vice versâ*. There were two principal causes of criminality. One of these was external to the recidivist—namely, environment and the economic conditions bringing it about and

perpetuating it, whilst the other was internal and hereditary and required to be estimated by the psychological and the psycho-pathological method. Racial differences were not of much moment except in regard (1) to the drink habit so prevalent among the Celtic, Teutonic, and Slavonic peoples in Northern France, the United States of America, Northern Germany, Denmark, Sweden, Russia, Belgium, the Netherlands, and Great Britain and Ireland; and (2) to the habit of carrying lethal weapons practised by the Celtiberian peoples of Spain, Portugal, the Balkan States, Italy, and along the littoral of the Mediterranean. After a lengthy analysis of the statistics of crimes and petty offences in Scotland and England for 1903 Dr. Sutherland said that without exception recidivism of every description was in the main in every country a product of urban life. It was rarely met with in rural districts. Recidivists lived in the insanitary, overcrowded, and wretched abodes which formed the slums of towns and cities. With regard to the classification of criminals, Dr. Sutherland approved of the following classification put forward some years ago by Lombroso, Benedikt, Havelock Ellis, and others: 1. Criminals by passion. These were persons who acted on the spur of the moment and were known by their good lives and genuine remorse. 2. Occasional criminals. These were not naturally inclined to crime, but were weak and easily led. Bad heredity was prominent in this class. 3. Habitual criminals (recidivists). These were made up (*a*) of those who were weak and helpless mentally and physically and (*b*) of those who deliberately adopted a career of crime. The professional was the aristocrat among criminals and was often skilled and intelligent. 4. Instinctive criminals. To this class belonged the congenital or born criminal, the *uomo delinquente*, who was decreed by nature to be such. He was regarded by Lombroso as morally insane. His type was clearly of the degenerate stock. 5. Insane criminals. These were, in the opinion of the Italian school, an exaggeration of the instinctive criminals. On the subject of the punishment of crime, Dr. Sutherland expressed disapproval of solitary confinement and recommended the conversion of prisons into industrial reformatories with associated labour.

HYGIENE AND COLONIAL MEDICINE.

The Relations of the Mosquito to Yellow Fever.

ON Saturday morning, April 21st, the section on hygiene sat with the section on colonial medicine (Sections XIV. and XVII.). The chair was taken by Professor RUBERT BOYCE of Liverpool and the now well-known doctrine that yellow fever is propagated by mosquito bites was fully discussed. It was maintained that the yellow fever patient was only capable of infecting the stegomyia fasciata mosquito during the first few days at the beginning of the access of fever. Then it was argued that this mosquito only bit in the day-time or by artificial light. Professor Boyce said that for prophylactic purposes this did not much matter and the same precaution would apply both to the day and the night.

Dr. H. W. AUSTIN of the United States Marine Health Service said that yellow fever was a disease which came under his supervision and it was his duty to see that prophylactic measures were enforced. These precautions were all based on the theory that the mosquito was the cause of yellow fever. At New Orleans and elsewhere action had been taken by local authorities and he could not answer for the principles on which they proceeded. They might possibly differ with the central government of the United States. Where, however, the Federal authorities had interfered they invariably proceeded to screen the patients so that mosquitoes should not be infected by biting them. Then they endeavoured to destroy all the mosquitoes. They had been successful in a measure, notwithstanding that epidemics were in existence before any action was taken. Had they been warned sooner the results would have proved much more beneficent. Doubts might be entertained that the mosquito was the only means of spreading yellow fever, but that was the general, the true explanation, and facts demonstrated that with the destruction of the mosquito the epidemic ceased.

After this speech the discussion seemed to flag and might have ceased altogether but for the energetic intervention of Professor BOYCE. Speaking in French, he insisted on the importance of the whole question, particularly if they included the analogies and possible relationship between yellow fever and dengue and grippe or influenza. On this latter point he would ask Dr. Agramonte of Havana to give his opinion.

Responding, Dr. AGRAMONTE made a lengthy and interesting speech. There had been at Havana a remarkable epidemic of dengue. This disease had so many points in common with yellow fever that he thought that it had come to Havana from New Orleans, where the latter disease prevailed. In June last year the first recorded cases of undoubted dengue occurred in Havana. It spread more especially in the thickly-populated district occupied by foreigners, yet during a recent small epidemic of yellow fever there had been no cases in that quarter. Thus dengue did most mischief where yellow fever had done no harm. In the isolation hospital 70 cases of dengue were carefully studied from the first day until the end of the disease. During the first three days the symptoms in no wise differed from those of yellow fever. Albuminuria was believed to be a clear proof of yellow fever but it was also found in cases of dengue. It was accompanied with great pain in the limbs and back. The symptoms, however, were not perhaps quite so severe as in yellow fever. There were the frontal headache and the aching back, and the temperature was a little higher than was usual in yellow fever. No distinction between the two diseases occurred until the third day; then it would be found that there was no correlation between the pulse and the temperature. There would be a rather low pulse for a comparatively high temperature. Again, there was no eruption with yellow fever, though there might be suffusion of the skin.

Professor BOYCE, again urging a continuation of the discussion, pointed out that in Honduras albuminuria had been found with grippe or influenza and they could not easily distinguish these diseases from yellow fever. Therefore patients suffering from yellow fever had been treated as if they had only grippe or dengue and thus the mosquitoes were given time to bite them and to spread the disease.

Dr. CARLOS M. CORTEZO (Madrid) now gave a totally different turn to the discussion for he ventured to challenge the mosquito theory. He pointed out that in 1876 there had been an epidemic of yellow fever at Madrid. Some soldiers had returned from Cuba. These soldiers were immune; not a single case of fever occurred among them while they were in Madrid. They went and lived in poor quarters of the town, narrow, ill-ventilated streets. Natives of Madrid living in close proximity to these soldiers came to the hospital with fever and unfamiliar symptoms. No member of the hospital staff had ever seen a case of yellow fever but imagined that these might be cases of this disease judging from mere theoretical knowledge. Physicians were immediately sent for who in the colonies had acquired practical experience of the disease and they confirmed the diagnosis. Then it was that the belief that this disease could not travel so far inland was destroyed. Dr. Cortezo thought that the disease would travel wherever it found the necessary soil. The soldiers had brought sacks with them which had not been opened since they left Cuba. The Paris commission that investigated the matter found the state of the spleen, the liver, and other organs the same as in cases of yellow fever. The disease did not spread to other parts of Madrid but remained in those quarters where its development was favoured by insanitary conditions.

Before the discussion thus raised could be taken up a member present rose to urge that petrol should not be used alone but that a mixture, in equal parts, of creoline and petrol was much more effective in killing mosquitoes.

The CHAIRMAN rising pointed out that Dr. Cortezo had asked whether there were other sorts of mosquitoes capable of spreading yellow fever and whether soiled linen could infect such mosquitoes? This was a practical question and must be answered. Others thought that the soil in the sewers could infect mosquitoes and that there was danger in dredging operations. He would ask Dr. Agramonte what was his opinion and whether there were other means than the mosquito by which the disease could be spread.

Dr. AGRAMONTE considered that at this late date it was not admissible that the mosquito theory could be challenged. This matter had been definitely settled by the experiments made by the American Commission. These experiments clearly proved that the disease could not be conveyed from one person to another except by the bite of the mosquito. 15 men—15 heroes—had consented to live in a small building where they were absolutely screened off from mosquitoes. In this building were placed the bedding and the clothing worn by yellow

fever patients. The 15 men wore the dirty shirts of the yellow fever patients. They slept in beds befouled with the fæcal matter of yellow fever patients and rested their heads on pillows stained with the black vomit. In every way possible they exposed themselves to the contagion, yet not one of the 15 caught the fever. Nor must it be imagined that these men were immune. On the contrary, after the experiment three of the 15 were accidently bitten by mosquitoes and then they did contract the yellow fever. As for sanitation, at Havana the authorities cleared all filth out of the town and the greatest improvements were effected. Still, the yellow fever continued and it only stopped when they had killed the mosquitoes.

An American naval officer whose name was not given out here interposed saying that he was tempted to believe the mosquito theory but that the work done by the American Commission, however brilliant, could not be accepted as an absolute proof. He believed that there were cases of yellow fever in places where the mosquito did not exist.

Dr. CORTEZO begged leave to insist on his point. The heroic American experiments seemed to show that there was no danger in soiled linen. From the administrative point of view they must not allow such a conception to gain popular credence. It was, on the contrary, essential to prevent soiled linen being carried about from town to town and country to country. Perhaps mosquitoes could infect themselves by contact with such linen. Perhaps larvæ had been brought over in the dirty baggage and finding in the poorer quarters of Madrid congenial surroundings they developed and infected the Madrid population.

Dr. ALBARRAN (Cuba) thought it was dangerous to express any doubt as to the possibility of mischief arising from soiled linen. Commercial men would soon object to the precautions now taken to disinfect linen coming from ports where yellow fever prevailed.

Dr. CORTEZO added that he did not doubt the conclusions of the American Commission but those who were protected against the stegomyia were also protected against other varieties of mosquitoes. At Madrid no stegomyia had been found but there were yellow fever and plenty of other sorts of mosquitoes. These seemed to attack poor and dirty people especially. Then they had suffered from yellow fever not only in Madrid but in Andalusia and at Barcelona.

Dr. FERDINAND CABO (Madrid) also argued in the same sense. It seemed to be demonstrated by the actual state of science that mosquitoes were the sole cause but they might still have something to learn on the subject, and it would be very unwise to cease to take measures to prevent the importation of soiled linen from infected countries. In Cuba there were places where no yellow fever existed till after the arrival of Spanish soldiers.

Dr. RAMOS and Dr. MAGALHAES, both from Brazil, spoke and did not seem to attach much importance to the mosquito theory. They asked for information in regard to mosquitoes and paludal-fever and what about the ships which had the fever, though there were no mosquitoes on board.

Dr. AGRAMONTE replied point by point, speaking this time in Spanish, as those who opposed his views seemed most familiar with that language. He maintained the mosquito theory and denied the possible importation of larvæ as they must have water to live. The mosquito could only infect itself with live blood. It bit only once and the person must be alive. It would not bite a dead body. The mosquitoes had great powers of resistance and were sometimes able to travel with a ship; then they went on shore when a ship reached a port. He thought that it was necessary to disinfect clothing and dirty linen for general purposes but not in so far as yellow fever is concerned.

Dr. RICARDO JORGE, President of the Section of Hygiene, said it was a Portuguese medical man who was the first to describe yellow fever which occurred during the siege of Lisbon. In Portugal they had numerous, continuous communications and traffic with South America. The predominating mosquito in Lisbon, Spain, and Italy is the specific mosquito, the stegomyia, so that it was necessary to take measures against the possibility of another invasion. Therefore passengers were watched for seven days. Though the period of incubation was said to be 13 days it was not practicable to continue to watch passengers for so long a time, but all their soiled clothes and linen were disinfected. This had been an established practice before the advent of the modern theory in regard to mosquitoes. Since 1893 no infected or suspected ship had entered Lisbon. In regard to Madrid he did not see how a mosquito could travel so far inland.

Dr. KOPKE replied that the eggs might be infected and they could travel any distance. The real question, and this should be experimentally studied, was whether the taint of yellow fever was hereditary among mosquitoes.

Dr. CORTEZO explained that in speaking a language with which he was not familiar he had used the word larvæ when he obviously meant eggs. He of course knew the former could not live without water. Perhaps they had in the hereditary and egg theory the explanation of the discrepancies that still exist in the theory of the infected living mosquito. This insect was not ubiquitous; it could not go everywhere, following soldiers from Cuba to Cadiz in a steamer and from Cadiz to Madrid in a railway carriage.

Dr. AGRAMONTE replied, admitting the possibility of this latter hypothesis. The egg had not been proved to be offensive or inoffensive. Perhaps the egg might bring forth the pathogenic mosquito and this might explain facts that seem to contradict the mosquito theory.

Thus the debate concluded and the egg supplied the link to bring the contending parties together. The tremendous clatter of voices, however, that broke forth the moment the President left the chair proved with what interest the discussion had been followed and that the somewhat large audience had been worked up to a considerable pitch of excitement.

In the afternoon Professor RUBERT BOYCE delivered a lecture on

The Prophylaxis of Yellow Fever,

in which he insisted on many of the points elucidated by the debate described above and the lantern views showed how the patients and the water-butts were screened against the approach of mosquitoes. Of course he insisted on immediate notification and isolation of cases. He then also showed how houses were to be fumigated and otherwise treated so as to kill all the mosquitoes lodged within. Further, he insisted that success was often only partial because the necessary measures were only partially applied. Still great progress had been achieved and thousands of lives had been saved.

Tuberculosis and Chalk and Lime Dust.

On Monday morning in the Section of Hygiene the discussions commenced at 10 o'clock.

Dr. GASPAR FISAC read a paper to show that lime and plaster workers were immune from pulmonary tuberculosis. Many provincial medical men had observed this fact. It would seem as if breathing the dust of lime and chalk acted as a preventive, for in the same districts other sections of the population suffered as usual from this disease.

Councillor Dr. G. ENNES thought the suggestion made was somewhat empirical. No theory had been advanced. Lime dust might have some action but plaster was quite neutral.

Dr. LOEFFLER inquired whether any experiments had been made with animals.

Dr. FISAC replied in the negative but said that he had made patients breathe a mixture of lime and plaster pulverised and with good results.

Mont Estoril as a Winter Station.

Dr. D. G. DALGADO then read a lengthy paper on the climate of Mont Estoril which is a popular health resort within half an hour's railway ride from Lisbon. It is advertised as the Portuguese Riviera and aims at being largely frequented by those who desire to escape from the rigour of northern winters. After criticising some writers who had not spoken favourably of the climate of Lisbon and its neighbourhood, he proceeded to explain the topographical position. Mont Estoril was in the same latitude as Palermo and 500 kilometres south of Nice. He would compare its climate with that of Catania, Nice, and Biarritz because official statistics existed in regard to those celebrated climatic resorts. He maintained that the climate of Mont Estoril was as uniform as that of Nice and more so than the climate of Biarritz. It lay directly under the influence of the Gulf Stream and in winter was from 1° to 3° C. warmer than its close neighbour Lisbon, the latter town not being so well sheltered and standing a little further inland, while Mont Estoril was immediately on the shores of the Atlantic. Cintra, which was 1775 feet above the sea, helped to shelter Mont Estoril from northerly winds and its average temperature was some four degrees Centigrade lower than that of Lisbon. In regard to humidity this was well within the desirable limit of 70 to 80 degrees of relative humidity. On the whole the winds were stronger in summer than in winter.

During the winter there were no snow-capped mountains near at hand and that was an advantage. The nearest snow was far away in the extreme north of Portugal and there Mont Estrelle had snow for six months of the year. Medically, the station of Mont Estoril was intermediate between the tonic and stimulating and the tonic-sedative. It would act as a stimulant in cases of debility following upon fevers but was, perhaps, too stimulating for certain conditions of heart disease. In cases of infantile wasting and of senile debility and in some forms of dyspepsia the climate of Mont Estoril has produced a tonic and a stimulating effect. As a sedative and tonic combined it was useful, said Dr. Dalgado, in most cases of asthma, insomnia, and nervous irritability. The equable temperature and comparative dryness were extremely useful in chronic rheumatism and gout. It was, he maintained, an ideal place for rest. Some cases of consumption would also be benefited by this climate but their admission was not allowed. Going into the statistics of temperature, Dr. Dalgado said there had been observations made at Lisbon for 46 years now and these showed that during the three winter months, December, January, and February, the mean temperature was 10·63° C. and the diurnal fluctuations were for December 6·48°, for January 6·55°, and for February 6·11° C. According to the official figures given by Dr. Lalesque of Arcachon the mean temperature of Biarritz was 7·79° and of Nice 7·91° C. The diurnal variations for the same three months were 6·56°, 6 57°, and 10·79° at Biarritz; and 10·31°, 9·69°, and 10·79° at Nice. For Catania the statistics available apply to only one year and they state that the mean temperature during the three winter months was 10·08° C. and the diurnal fluctuations were 4·05°, 6 05°, and 6·08° for the same three months. Therefore, these figures showed that the climate of Lisbon and Mont Estoril was better than that of Biarritz and Nice and nearly as good as that of Catania in Sicily. These observations also applied to the other seasons of the year; in no month were the fluctuations greater than at Biarritz and Nice. Indeed, the yearly fluctuation was only 11·42° C. at Lisbon, while it was 13·19° C. at Biarritz, 15·61° C. at Nice, and 20·08° C. at Catania. Therefore Lisbon was more equable than any of the other three places. The mean humidity for the three winter months was 79·1, 79·2, and 79·3 at Lisbon; 73·6, 75·7, and 73·3 at Biarritz; 74·7, 75·1, and 74·6 at Nice; and 70·7, 67·0, and 66·0 at Catania. According to Professor Jaccoud the ideal was between 70 and 80. Of course, Mont Estoril would show similar but somewhat better figures than its close neighbour Lisbon. Also, in regard to Mont Estoril it should be remarked that three out of the four winds were sea winds. The northerly winds were sea winds broken by the Cintra mountains and the hill of Mont Estoril itself. These might be described as attenuated sea winds. But the north-west, the west, and the south-west blew directly up on Mont Estoril from the broad expanse of the Atlantic.

Mr. G. JACKSON (Plymouth) asked a few questions as soon as Dr. Dalgado had terminated his paper. Before he could venture to recommend his patients to winter at Mont Estoril it would be necessary to know some details as to the drainage and general sanitation of the place. He had been told that the sewer outfall was exposed at low tide. Then he thought that there was not sufficient hotel accommodation. Also, if tuberculous patients were not admitted that was a serious obstacle and he wanted to know whether such restriction applied to the whole neighbourhood. It was just the sort of place to which to send early cases. Again, were the sewers ventilated and how? Finally, what about the water-supply? He had been told that it was good in one part of Mont Estoril and not in the other.

Dr. DALGADO replied that no place in Portugal was so well drained as Mont Estoril. In regard to ventilation, the hotels had ventilating shafts but whether they were intended for the ventilation of the soil-pipes or of the sewers was not stated. The fact that the whole place sloped towards the sea aided the drainage, said Dr. Dalgado, oblivious of the fact that steep gradients greatly complicate the ventilation problem. As for hotel accommodation, there were only two hotels at present, but there would be more as soon as the demand made itself felt. There had been an increase of accommodation equal to 15 per cent. last year and to 30 per cent. this year. In regard to tuberculous patients, it was illegal for persons suffering from that disease to enter a hotel and the hotel proprietor would be punished for receiving them. No country more early admitted the contagious nature of pulmonary tuberculosis. A house or villa where there had been a case might remain vacant for four or five years; no one would live there. Tuberculous patients must go to sanatoriums built expressly for them.

Dr. Loeffler's New Method of detecting Typhoid Bacilli.

On Tuesday morning, April 24th, the proceedings in the section of hygiene were opened by Dr. LOEFFLER who spoke about a new method of verifying the presence of the typhoid bacillus in liquid matter. These bacilli were rapidly destroyed by the colon and other bacilli that grew at the same time. If, however, they took a little peptonised beef-tea and phosphoric acid and added thereto some malachite green, the colon and other microbes would be killed but the typhoid bacilli would not be destroyed. Should fæcal or such substances be added the typhoid bacilli would be destroyed at 35° C. By adding gelatin, phosphoric acid, and malachite green the typhoid bacilli would multiply in about 10 or 12 hours. If then a small quantity was put into gelatin and care was taken to maintain a temperature of 24° C., the bacilli would grow in different directions forming colonies. Under a magnifier these strange colonies were readily seen. The method works easily and Professor Loeffler expressed the hope that it would be of practical service in the struggle against typhoid fever.

Professor Dr. UHHENBUTH (Greifswald) said a few words in German, to which Professor LOEFFLER replied that the bacilli in question all belonged to a great botanic family but some branches could grow and others could not in malachite green. If to this substance the bacillus coli was added its nature began to change. It would ferment and green would appear on the surface. If the typhoid germ was added no change took place. Therefore, with the aid of this solution they were able to distinguish between different members of the same family.

Miscellaneous Questions.

Dr. RAMIRO ARROYO (Béjar, Portugal) read a paper on the injury resulting from drinking soft waters. He described a locality in Portugal where the water drunk was almost like distilled water and explained that salts had to be added. The section generally agreed as to the injurious effect of waters that contained no salts, such as, for instance, melted snow.

Senhor MELLO DE MATTOS followed on the necessity of teaching hygiene in all the secondary schools and had a good deal to say on what he termed healthy thoughts or the hygiene of the mind.

Dr. OLIVEIRA LAZES (Lisbon) gave some figures taken from private practice to show that syphilis was a predisposing cause of tuberculosis. The effective control of prostitution was a means of checking the growth of tuberculosis. After a few remarks from different members the section adjourned.

The Vital Statistics of Portugal.

There was a good discussion with a numerous attendance at the last meeting of the section held on Wednesday morning (April 25th). First, the President of the Section, Dr. RICARDO JORGE, dealt with the vital statistics of Portugal. Taking the last four periods of five years each, terminating in 1904, the population of Portugal increased from the year 1886 to 1904 from 4,878,978 to 5,556,814 and the average death-rates decreased. They amounted for each of the four periods of five years to an annual average of 22·71, 21·20, 21·29, and 19·98 per 1000 of the population. The birth-rate, however, during the same five-year periods fell from 33·41 to 30·96, 30·19, and then rose again during the last period of five years to a yearly average of 32·11 per 1000 of the population. The increase of the population was nevertheless due rather to the saving of life than to the augmentation of births. The sudden rise in the birth-rate was set down to the fact that Portugal was recovering from a period of severe financial depression.

This paper was followed by another demographical study by Professor SOBRAL CID of the Coimbra Faculty of Medicine on Infant Mortality in Portugal. It amounts to 137 per 1000 for infants under 12 months of age and it is less than in the other Latin countries, the figures being for Spain 191, for Italy 190, for France 168 and for Belgium 162. But the infant mortality amounts to 222 at Oporto and 199 at Lisbon. The infant mortality at Oporto is in excess of that of the French and Italian towns, excepting the town of Rouen, while that of Lisbon is above that of the European capitals with the exception of Rome and Madrid. Thus the low infant death-rate in Portugal is due to the predominance of the rural population.

Mr. ADOLPHE SMITH attempted to deduce a moral from the facts which had been submitted to the section. First he pointed out that the modern, more humane, and scientific methods of medical inspection and disinfection which had replaced the antique and cruel practice of maritime quarantines had in no wise affected the death-rate. On the contrary, there had been fewer, not more, epidemics. Secondly, the death-rates quoted had shown the indissoluble connexion between hygiene and political economy. When the national finances of Portugal were at an exceptionally low ebb the death-rate reached its highest point. The geographical distribution of a high infantile mortality showed that there was the greatest fatality where the pressure of economic necessity drove mothers from their infants' cradles to attend the machines in large mills and factories. The best sanitation was of little avail against the grip of starvation, and the two preceding Portuguese speakers had rendered a great service by supplying statistics that conclusively demonstrated the intimate connexion between economic pressure and the high general, and more especially the high infantile, rate of mortality.

These arguments were enthusiastically endorsed by the section and its PRESIDENT moved a special vote of thanks to the speakers.

Senhor FRIGUEIROS MARTEL, a civil engineer, submitted some tables on the comparative amount of food consumed in Lisbon and in Paris. These amounted in albumin to 105 407 grammes in Lisbon and to 107 630 in Paris per head per day, an advantage of 2·273 in favour of Paris. For fats or grease the figures were 48·47 grammes for Lisbon and 56·54 for Paris, again an advantage of 8 07 grammes for Paris. Finally, the amount of carbohydrates is 398·99 grammes at Lisbon and 400·10 at Paris, an advantage of only 1·11 for Paris. In Paris also there is a much larger consumption of alcohol, amounting to 9·5 cubic centimetres of pure alcohol per head per day, whilst at Lisbon it is only 1·5 cubic centimetres per head per day. The speaker insisted on the necessity of more abundant food for the manual workers. He was followed by Dr. MASIP who wanted to improve the law on artisans' dwellings, and by Dr. FRANCISCO NAMORADO who advocated vegetarianism.

The Resolutions of the Section of Hygiene.

The President then laid upon the table a large number of papers which should have been read to the section. Their authors, however, were not present; and even if they had responded when their names were called there remained insufficient time to hear them. The President now submitted to the vote the various motions that had been introduced in the section during the course of the debates. First, a motion was adopted recommending the creation of anti-tuberculosis dispensaries to serve as centres of treatment, of education for the prevention of the disease, and for the early detection of cases. Then a motion was approved in favour of compulsory disinfection under the control of State officials in cases of infectious and contagious disease.

Opposition was made to a proposal demanding the convocation of an international conference on plague so as to help to find the methods and the money to combat this disease.

Dr. LOEFFLER said that various nationalities had sent out expeditions to investigate this matter, notably France, Austria, and Russia, and he doubted whether anything more was necessary.

The PRESIDENT replied that though many countries had made national scientific inquiries an international effort was now perhaps necessary.

A DELEGATE objected that after all the principal seat of plague was British India, and what would the British Government say to the proposal?

Mr. SMITH remarked that what the British authorities needed was some means of overcoming the religious prejudices of the native Indian populations which rendered it almost impossible to enforce the means of checking plague which an international commission would probably recommend. The matter then dropped and no motion was put.

A motion was brought forward to protect workers, especially in unwholesome and injurious industries, and an amendment was carried to the effect that legislation for the protection of labour should, so far as possible, be the same in all nations so as to prevent the cause of humanity suffering from the exigencies of competition.

With a vote of thanks to the presiding officials the section then terminated its labours.

LEGAL MEDICINE.

Professor ADRIANO X. LOPES VIEIRA, superintendent of the Morgue at Coimbra, read a paper upon

The Signs of Death by Drowning.

He said that one of his principal objects was to consider whether in the case of a dead body found in water the death was due (1) to asphyxia consequent on the immersion, or (2) to some other cause. Most writers on legal medicine believed that in these circumstances death not due to asphyxia was rare but Professor Vieira, on the contrary, believed it to be relatively frequent. Among the small number of writers who had given attention to the subject of death due to syncope as distinguished from death due to asphyxia he mentioned Dixon Mann and Vivian Poore in England, Strassmann in Berlin, Vibert in Paris, and Witthauss and Becker and Peterson and Haines in North America. After reviewing the classical signs of death from drowning he said that they were not invariably present. Moreover, when death was not due to asphyxia—that was to say, when death took place suddenly so that the person had no time either to draw water into the lungs or to swallow it—the post-mortem appearances which resulted from such drawing of water into the lungs or swallowing it must be absent. At present there was hardly any means of determining whether death in such circumstances was due to respiratory syncope or to cardiac syncope or to meningo-encephalic congestion or hæmorrhage. As illustrating his views he described a case in which the body of an infant was found in a well near Coimbra. The parents when brought to trial said that the body was not thrown into the well until after the infant had died a natural death in their arms. The body was that of a healthy infant, there were no signs of strangulation, and the post-mortem appearances did not warrant the making of a more definite statement than that death might have been due to respiratory syncope. The parents were therefore acquitted.

THE GERMAN SURGICAL CONGRESS.[1]

THE German Surgical Association held its annual meeting in Berlin from April 4th to 7th, Professor KÖRTE (Berlin) being in the chair. In his inaugural address the chairman alluded to the ever-increasing number of members and said that in former times the progress of medical science depended mainly on the work accomplished by men holding appointments at the universities, but the great hospitals were now to some extent making their influence felt in this respect. The first day of the meeting was almost exclusively devoted to military surgery, a subject which has undergone great development owing to the recent Russo-Japanese war.

Military Surgery.

Professor ZOEGE VON MANTEUFFEL (Dorpat in Russia) read a paper describing his experiences of first aid on the battlefield. He spoke of the difficulties encountered in establishing dressing stations, difficulties which were due to the very long range of modern projectiles. The dressing stations, and still more the moveable field hospitals, must therefore be placed at a great distance from the scene of the engagement. A large number of transport vehicles was essential and the hospitals should be established as near as possible to the railway stations so as to facilitate the subsequent removal of the wounded. With regard to the nature of the wounds coming under treatment he said that wounds caused by shells were not often seen because they were liable to prove fatal at once. Shrapnel wounds, on the other hand, were rather frequent and their action differed very much in individual cases. Once, for instance, the thorax and the vertebral column were perforated, in another instance 11 bullets were found under the skin of the face. They nearly always tore the man's clothes and drove the pieces into the wound so that the latter became contaminated. Shrapnel was therefore more dangerous than rifle bullets which produced simple wounds of entrance and exit. An explosive action was never observed. Professor von Manteuffel then spoke of the number of cases which must

[1] For this report we wish to tender our sincere thanks to the editor of the *Deutsche Medizinische Wochenschrift*, through whose courtesy it has been forwarded to us by our Berlin correspondent.

be expected to occur. Generally one-third of the force engaged was put out of action and of these men the fourth part were either dead or missing while the remainder were wounded. In the battle of Mukden 62,000 out of 280,000 combatants were wounded. The surgeons had to work especially at night and on an average from 100 to 120 wounded were dressed by each surgeon. The dressing material which the soldiers carried with them proved to be very useful; the temporary dressing done by the comrades of the wounded was often so good that no change was necessary. In shrapnel wounds and wounds passing directly through the skull the conservative method proved to be the best. In tangential wounds of the skull, however, in which pieces of the man's cap, hair, or splinters of bones were often present, the wound had to be cleansed and the apertures of entrance and exit joined by chiselling away the intervening bridge of bone. Wounds of the trachea and of the œsophagus were treated by conservative methods exclusively and so also were wounds of the lungs, the head, and the vertebral column. The patients suffering from wounds of the vertebræ often died from cystitis caused by the use of dirty catheters during transport. Abdominal wounds were only to be dressed externally and no operations were to be performed in the dressing station. In wounds of the extremities plaster bandages were to be applied and if an amputation became necessary the stump was not to be sutured.

Dr. SCHÄFER of the German Red Cross Society said that the number of men put out of action was on an average 16 per cent., but was sometimes 21 per cent. In some regiments which took part in several battles the proportion of losses rose to 95 per cent. Of 100 wounded on an average 44 were put out of action, the proportion between deaths and wounded being 1 to 5. Of the wounded only 2 per cent. died; the proportion of slight wounds was therefore considerable and 45 per cent. of them were able to take part again in the war. In some instances men who were wounded three, four, or even five times returned to the ranks—a splendid testimonial to the bravery of the Russian soldier. Dr. Schäfer concluded by saying that the urgent question to be solved in future wars would be the transport of the wounded.

Dr. GOLDAMMER (Hamburg) read a paper on the War in German South Africa. The circumstances of this war differed from those of the Russo-Japanese war because the number of patients was relatively small, but the great distances which separated the combatants from the field hospitals and the base hospitals made the transport of the wounded very difficult. Disinfection of wounds was impossible owing to the deficiency of water-supply and dry dressing was therefore the method used in the majority of cases. When there was no urgent indication for an operation a piece of iodoform gauze was put on the wound and fixed by adhesive plaster. The gauze soon became dry, the edges of the wound adhered to one another, and when the patient was being removed a gauze bandage could be applied, for with compound fractures the application of a splint was essential for transport.

Dr. BORNHAUPT (Riga) presented a report on wounds of the joints. He said that his hospital was at the railway-station in Harbin, six days' journey from the theatre of war, and that he had treated 157 cases, being 78 per cent. of all the wounds in question; wounds of the knee were the most frequent, then came those of the ankle and the shoulder. Suppuration occurred most frequently in the ankle, whilst simple wounds of the knee-joint usually healed without reaction. Of non-suppurating joints 93 per cent. healed without reaction and in the case of the knee-joint even 100 per cent. Patients not suffering from reaction were sometimes able to get up on the fifth day. In 23·6 per cent. of the cases operations were performed chiefly on account of suppuration, shell wounds of the hip-joint and the knee showing the greatest mortality.

Dr. BRENTANO (Berlin) read a paper on wounds of the blood-vessels. He said that primary operations on blood-vessels were impossible on the battlefield and could only be performed in the field hospital. Aneurysms were of frequent occurrence and had to be dealt with subsequently by operation. He showed a specimen consisting of an aorta perforated by a bullet; notwithstanding the serious nature of the injury the patient lived for a whole day.

Dr. COLMERS (Leipsic) read a paper on compound fractures caused by artillery or rifle fire. He recommended that no attempts at disinfection should be made but that occlusive dressings and plaster bandages should be applied.

Dr. HENLE (Breslau) and Dr. HILDEBRANDT (Berlin) spoke of injuries of the nerves and of the skull.

Dr. VON OETTINGEN (Berlin) remarked that projectiles coming from a distance of about 300 metres made small entrance and exit wounds but there might at the same time be severe lacerations of the viscera. As even in extensive injuries adhesions might eventually occur the treatment must be strictly conservative, prolapses and incarcerations of course excepted.

In the discussion Dr. VON WREDEN (St. Petersburg), a representative of the Russian Army Medical Corps, opposed the opinion that the modern rifle was more humane than the older form. He said that the new rifle was by far the more deadly of the two.

Operations on the Thyroid Gland.

Professor KOCHER (Berne) read a report on the third series of 1000 operations for extirpation of the thyroid gland performed by him, the death-rate being 0·1 per cent. These cases included 36 of malignant disease, eight of inflammation of the gland, 52 of Graves's disease, and 904 of ordinary excision. The operation itself was not dangerous provided that the heart was healthy; in Graves's disease the operation must be performed as early as possible. Careful ligature of the blood-vessels with sterilised silk was essential. The internal administration of iodine or of thyroid preparations was useless.

Operations for Gastric Ulcer.

Professor KRÖNLEIN (Zürich) said that the results of internal treatment in this condition were far from being satisfactory. At the meeting of the German Surgical Congress in 1897 Professor Leube had stated that internal and dietetic treatment had been unsuccessful in 7·9 per cent., death occurring in 2·4 per cent. only. These numbers were, in Professor Krönlein's opinion, misleading because they took into account only the immediate results without regarding the sequelæ. Other statistics published by Dr. Warren of Boston and Dr. Schulz of Breslau showed that internal treatment was unsuccessful in about 25 per cent. of the cases and that there were from 10 to 13 per cent. of deaths. Although the cases coming under surgical treatment were much graver, because in a good many of them internal treatment had previously been used without success, the ultimate results were that in 85 per cent. a complete and permanent recovery was obtained. The death-rate was from 8 to 10 per cent.; on an average 3 per cent. died afterwards, especially from cancer. The object of the operation was to produce a cicatrisation of the ulcer and a restitution of the normal function of the stomach. Total resection of an ulcer was not often practicable because the ulcers were not infrequently multiple. Gastro-enterostomy, moreover, by creating a new way between the stomach and the intestines, and so removing the ingesta quickly, prevented them from decomposing. Gastro-enterostomy should, therefore, be the normal operation and should be preferred to gastrectomy. The indications for the operation were the failure of internal treatment, stenosis of the pylorus, gastrectasis, and repeated hæmorrhage. In profuse hæmorrhage the operation should be postponed until the patient had somewhat recovered.

Professor RYDYGIER (Lemberg) said that resection of the ulcers was preferable to gastro-enterostomy because the condition of the stomach became normal. Moreover, resection prevented the formation of peptic ulcers of the stomach and removed callous edges. He said that he had lost two of his cases of gastro-enterostomy from profuse hæmorrhage and two cases from perforation and he suggested that these complications were probably not infrequent. By resection of the ulcers the development of cancer was avoided.

Dr. KÜMMELL (Hamburg) said that ulcers were not liable to become cancerous when the irritation caused by the ingesta had been removed by gastro-enterostomy. The great difficulty and the long duration of resection made this operation dangerous, especially in weak patients.

Professor KÖRTE (Berlin) reported 36 perforations, of which 24 occurred into the abdominal cavity, while 12 were subphrenic. After resection he had known ulcers to recur on two occasions and hæmorrhage once. His operative results had recently become better because he operated at an earlier stage.

(To be continued.)

MEDICINE AND THE LAW.

An Unfounded Charge Dismissed.

THE extraordinary prosecution brought against Dr. Alfred Ernest Jones by two mentally defective little girls whom he had examined as one of the medical officers of the London County Council with a view to provision for their suitable education has been dismissed. The result was a foregone conclusion so far as ultimate acquittal was concerned, but Dr. Jones is to be congratulated upon having had the preliminary stages of such an accusation heard before a metropolitan police magistrate whose wide experience in criminal charges of all kinds enabled him to take with confidence a course which members of other benches less used to exercise their discretion vigorously and promptly might have hesitated to adopt. The charge was one which on the face of it was either entirely without foundation, or one which, if the facts were proved, would have shown that a lunatic asylum must be the only fit place for the accused. Dr. J. Kerr made inquiry and saw that no reliance could be placed on the preposterous statements of the children, but the parents, not satisfied with his conclusion that there was nothing to justify the matter being taken further, with more zeal on behalf of their offspring than discretion or charity towards Dr. Jones, insisted upon the police intervening. The case has since had a fair and prolonged hearing in open court and if the evidence led the magistrate to the conclusion that no jury would dream of convicting upon it, it must also have brought home to all the most insidious perils that a medical man is called upon to undergo in the pursuit of his profession. He cannot always have a third person present, even whenever he may be called upon to make inquiries and examinations likely to suggest hideous accusations of immorality to the diseased mind of his patient. In such a case as that now commented upon he probably would not think of doing so. Now, however, with this recent experience to recommend every precaution possible, it may be pointed out that in many instances where the interview is one conducted in an official capacity it will usually be easy to secure the presence of a matron or a nurse. Dr. Jones should be the recipient of warm congratulation, followed by prompt oblivion that any such charge ever hung over his head.

A Quack Medicine Company and its Advertisements.

In an action tried recently by Mr. Justice Lawrance in the King's Bench Division a firm of advertising agents sued "The Kouvo Manufacturing Company" for £126 in connexion with the insertion of advertisements in provincial newspapers. The subject of the advertisements was a quack remedy for rheumatism, the orders for their insertion being given by a Mr. Cowood, manager of the company at Leeds, cheques paid on account being signed by a Mr. Henry Watson. When, however, the advertisement agents asked for a settlement of the balance owed to them they were told that there was no such company as "The Kouvo Manufacturing Company" and the defence alleged that the business was that of another company entitled the Danish Siberian Produce Company, which was in liquidation, Mr. Watson being apparently the liquidator. With regard to this gentleman Mr. Justice Lawrance observed that he had been reading the affidavit made by him and that anything more misleading he had never seen, adding that he should have liked to see Mr. Watson in the witness-box, as in the document before the court there was nothing to show that he had had previous knowledge of the transactions referred to or was other than a liquidator brought in as such from outside. His lordship's observations on the conduct of the defendants in the matter before him were of an extremely severe character; he characterised it as a swindle and after the defendants' counsel had declined to go further with the defence before his lordship he gave judgment for the plaintiffs with costs, ordering also that the defendants should declare who was responsible for payment to the plaintiffs. He refused a stay of execution and declined to give leave to appeal against the order mentioned. As an appeal, nevertheless, may be contemplated with regard to the case itself further comment upon it would be premature. We may say, however, that we should in the circumstances be prepared to express no sympathy either with the plaintiffs or with the defendants. The advertisements of quack medicine vendors in general are concocted with a view to selling articles which do not possess the qualities assigned to them and which have an intrinsic value immeasurably below the price at which they are sold. The business may be a paying one—in many instances we have no doubt that it is so—but advertisement agents who traffic with the purveyers of such rubbish, relying upon their credit, are not unlikely to find themselves losers by the transaction.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

AN ordinary meeting of the Council was held on May 10th, Mr. JOHN TWEEDY, the President, being in the chair.

Surgeon-General Arthur Mudge Branfoot, C.I.E., and Director-General Herbert Mackay Ellis, R.N., were introduced and after signing the by-laws and making the required declaration were admitted Fellows of the College.

Mr. Reginald Cheyne Elmslie was introduced and the President handed to him a cheque for the amount of the Jacksonian prize for the year 1905, together with a document declaratory of the award.

Mr. Walter Burford Johnson was introduced and signed the Roll of Begley Students and the President handed to him a cheque for the first year's payment in respect of his studentship and a document certifying his appointment as Begley student.

It was resolved to issue Diplomas of Membership to 102 successful candidates.

A letter was read from Dr. J. Ward Cousins presenting his report as the representative of the College on the Central Midwives Board. The report showed that during the past year 20 meetings of the Board have been held, that 18 examiners for London and 16 for the provinces have been appointed, and that three examinations have taken place. In all there have been 1256 candidates, of whom 956 have passed and 300 have been rejected. The Board has recognised 63 training schools and the number of teachers appointed amounts to 128. Up to April 1st, 1906, 23,166 women have been admitted to the Midwives Roll; of this number 22,210 were certified under the provision for existing midwives in *bonâ-fide* practice prior to April 1st, 1905, and 956 have passed the examination of the Central Midwives Board. The disciplinary proceedings of the Board have resulted in the removal of 14 midwives from the Roll and seven others have been severely censured. The county councils and the county borough councils of England and Wales are only slowly carrying out the provisions of the Midwives Act of 1902. 33 of the county councils have not yet appointed a medical executive officer. The councils of 23 counties have appointed inspectors of midwives, and in eight English and five Welsh counties the Act is stated to be administered wholly by the local supervising authority without the assistance of any medical officer or inspector. In a few counties the duties of inspector are performed by the county or district medical officer. 42 of the county borough councils have not yet decided to appoint an inspector of midwives. In 28 county boroughs the medical officer of health or a female inspector has been selected to discharge these important duties. At Manchester a qualified female practitioner is the local inspector and at Liverpool the ex-matron of the lying-in hospital has been appointed to the office. Dr. Cousins also pointed out that evidence of elementary education of candidates should be required of all pupil-midwives before the commencement of their training; and concluded his interesting report as follows: "I regret to state that Liverpool and Cardiff are the only centres where the councils have made any arrangement for the payment of medical men summoned to assist midwives in cases of difficulty and danger. By the Act the profession is practically responsible for the safety of the poor parturient women of the country, and yet it contains no provision to secure payment for professional services."

The best thanks of the Council were given to Dr. Cousins for his services as the representative of the College.

It was resolved to suspend the rule relating to the meetings of Fellows (the effect of this is that the annual meeting of Fellows in July will not be held this year).

It was resolved to hold a Fellows' subscription dinner on Thursday, July 5th, the day of the Council election.

A letter was read from Professor Carl Olaf Jensen thanking the Council for the recognition accorded by it to his work in the field of cancer research by the award of the

Walker prize and expressing regret that it would be impossible for him to visit England and to express his thanks in person.

The PRESIDENT reported that after the receipt of Professor Jensen's letter he had communicated with the Honourable Sir Alan Johnstone, K.C.V.O., British Minister at Copenhagen, and that his Excellency had kindly undertaken to present the Walker prize to Professor Jensen on behalf of the Council.

A letter was read from Dr. Just Lucas-Championnière thanking the Council for the honour which it had conferred upon him in making him an Honorary Fellow.

A letter was read from Lieutenant-Colonel Sir R. Havelock H. R. Charles, I.M.S., K.C.V.O., thanking the Council for awarding to him the honorary medal of the College and expressing his high appreciation of the honour conferred upon him.

The PRESIDENT reported that in pursuance of the resolution adopted by the Council at its last meeting he had appointed Dr. H. Timbrell Bulstrode a representative of the College, in association with Mr. Edmund Owen, on the general organising committee for the Second International Congress on School Hygience.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 8676 births and 4698 deaths were registered during the week ending May 12th. The annual rate of mortality in these towns, which had been equal to 17·3, 16·7, and 16·3 in the three preceding weeks, further declined last week to 15·5. The mean death-rate in these towns during the first six weeks of the current quarter was 16·7 per 1000; in London it was 17·0. The lowest death-rates during last week in the 76 towns were 6·5 in King's Norton, 6·7 in Northampton, 6·9 in Walthamstow, 7·2 in Hornsey, and 7·4 in Handsworth; the rates in the other towns ranged upwards to 20·5 in Liverpool and in Salford, 21·0 in Bradford, 21·3 in Bury and in Rotherham, and 23·1 in Barrow-in-Furness. The 4698 deaths in the 76 towns showed a further decline of 256 from the numbers in recent weeks and included 484 which were referred to the principal infectious diseases, against 519, 484, and 482 in the three preceding weeks; of these, 218 resulted from measles, 123 from whooping-cough, 47 from scarlet fever, 37 from diphtheria, 42 from diarrhœa, 17 from "fever" (principally enteric), and not one from small-pox. The deaths from these diseases were equal to an annual rate of 1·6 per 1000 in the 76 towns and the rate was the same in London. No death from any of these infectious diseases was registered last week in Nottingham, St. Helens, Bury, Rochdale, Hastings, or in six other of the large towns, whereas they caused the highest death-rates in Manchester, Salford, Liverpool, Bradford, Yarmouth, and Burnley. The highest death-rates from measles occurred in Liverpool, Bradford, Yarmouth, and Burnley; from whooping-cough in Reading, Bootle, Huddersfield, Coventry, and Warrington; from scarlet fever in Sheffield and Rotherham; and from diphtheria in Hornsey and York. The 42 deaths attributed to diarrhœa in the 76 towns showed a slight increase, while those referred to "fever" showed a decline. Only one case of small-pox remained under treatment in the Metropolitan Asylums Hospitals at the end of last week and no new case was admitted during the week. The number of scarlet fever cases under treatment in these hospitals and in the London Fever Hospital on Saturday, May 12th, was 2378, showing a further increase upon the numbers in recent weeks; the 338 new cases admitted during the week were fewer by 19 than the number in the previous week. The deaths referred in London to pneumonia and other diseases of the respiratory organs, which had been 399, 361, and 309 in the three preceding weeks, further declined to 273 in the week under notice, but exceeded by 34 the corrected average for the corresponding week in the four preceding years, 1902-05. The causes of 56, or less than 1 per cent., of the deaths registered in the 76 towns during the week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Bristol, Leicester, Leeds, Sunderland, Newcastle-upon-Tyne, and in 47 smaller towns. The proportion of uncertified deaths showed, however, an excess in Birmingham, Liverpool, Warrington, Bradford, and Gateshead.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been equal to 18·4 and 18·0 per 1000 in the two preceding weeks, rose again to 18·8 in the week ending May 12th, and exceeded by 3·3 the mean rate during the same week in the 76 large English towns. The rates in the eight Scotch towns ranged from 13·2 and 16·5 in Paisley and Aberdeen to 19·9 in Glasgow and in Greenock, 20·2 in Dundee, and 22·7 in Perth. The 645 deaths in these eight towns included 26 which were referred to measles, 16 to whooping-cough, 15 to diarrhœa, seven to diphtheria, two to scarlet fever, one to "fever" (probably enteric), and not one to small-pox, although a death in Edinburgh was attributed to chicken-pox. In all, 67 deaths resulted from these principal infectious diseases, a decline of three from the number in the previous week. These 67 deaths were equal to an annual rate of 2·0 per 1000, which exceeded by 0·4 the mean rate during the week from the same diseases in the 76 large English towns. The 26 fatal cases of measles in the Scotch towns showed a further increase upon the numbers returned in recent weeks and included nine in Glasgow, eight in Edinburgh, six in Leith, and three in Dundee. The 16 deaths from whooping-cough were fewer by five than the number in the previous week; 12 occurred in Glasgow and two in Edinburgh. Of the 15 deaths attributed to diarrhœa, an increase of two upon the number in the previous week, nine were returned in Glasgow and two in Paisley. The seven deaths from diphtheria included three in Glasgow and two in Edinburgh; the two fatal cases of scarlet fever occurred in Edinburgh; and the death from "fever" in Glasgow. The deaths referred in the eight towns to diseases of the respiratory organs, including pneumonia, which had been 135 and 138 in the two preceding weeks, declined last week to 109 but exceeded by two the number referred to these diseases in the corresponding week of last year. The causes of 19, or nearly 3 per cent., of the deaths registered in the eight towns during the week were not certified, the proportion of uncertified deaths in the 76 large English towns during the same week being less than 1 per cent.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 28·1, 22·4, and 25·9 in the three preceding weeks, declined to 21·7 in the week ending May 12th. During the first six weeks of the current quarter the death-rate in the city averaged 23·8 per 1000, against 17·0 in London and 18·6 in Edinburgh. The 158 deaths of persons belonging to Dublin registered during the week under notice showed a decline of 30 from the number returned in the previous week; they included eight which were referred to the principal infectious diseases, against ten and two in the two preceding weeks. The eight deaths from these infectious diseases included three fatal cases of "fever" (probably enteric), three of diarrhœa, and one each of measles and whooping-cough; they were equal to an annual rate of 1·1 per 1000, the rate from these diseases in the same week being 1·6 in London and 2·4 in Edinburgh. The 158 deaths in Dublin last week included 26 of infants under one year of age and 57 of persons aged upwards of 60 years; the deaths of infants exceeded the number in any recent week, while those of elderly persons were fewer by two than the number in the previous week. Three inquest cases and one death from violence were registered; and 67, or 42 per cent., of the deaths occurred in public institutions. The causes of three, or nearly 2 per cent., of the deaths were not certified either by a registered medical practitioner or by a coroner.

VITAL STATISTICS OF LONDON DURING APRIL, 1906.

IN the accompanying table will be found summarised complete statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious diseases it appears that the number of persons reported to be suffering from one or other of the nine diseases specified in the table was equal to an annual rate of 5·9 per 1000 of the population, estimated at 4,721,217 persons in the middle of the year. In the three preceding months the rates had been 6·7, 6·4, and 5·7 per 1000 respectively. The lowest rates last month were recorded in the City of Westminster, Islington,

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING APRIL, 1906.

(Specially compiled for THE LANCET.)

CITIES AND BOROUGHS.	Estimated population in the middle of 1906.	NOTIFIED CASES OF INFECTIOUS DISEASE.										DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.										Deaths from all causes.	Death-rate per 1000 living.	Deaths of infants under one year to 1000 births.
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cholera.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Typhus fever.	Enteric fever.	Other continued fevers.	Diarrhœa.	Total.	Annual rate per 1000 persons living.			
LONDON	4,721,217	1	1201	537	—	73	—	24	292	—	2128	5·9	—	293	40	52	158	—	9	1	57	610	1·7	6170	17·0	114
West Districts.																										
Paddington	148,913	—	53	3	—	2	—	1	11	—	70	6·1	—	2	5	1	2	—	—	—	2	12	1·1	164	14·4	92
Kensington	180,962	—	47	22	—	3	—	2	7	—	81	5·8	—	17	—	2	2	—	1	—	—	22	1·6	233	16·8	116
Hammersmith	120,679	—	30	30	—	2	—	—	13	—	75	8·1	—	6	5	1	2	—	—	—	—	14	1·5	142	15·3	114
Fulham	161,995	—	36	25	—	8	—	3	11	—	83	6·7	—	10	1	4	2	—	1	—	2	20	1·6	174	14·0	98
Chelsea	74,672	—	22	14	—	—	—	2	3	—	41	7·2	—	30	2	3	6	—	—	—	1	42	7·3	151	26·4	180
City of Westminster	173,905	—	22	8	—	3	—	—	3	—	36	2·7	—	—	1	—	5	—	—	1	2	9	0·7	202	15·1	106
North Districts.																										
St. Marylebone	128,580	—	25	12	—	2	—	—	9	—	48	4·9	—	3	—	1	—	—	—	—	—	4	0·4	185	18·8	63
Hampstead	89,633	—	34	5	—	2	—	—	3	—	44	6·4	—	2	—	—	—	—	—	—	—	2	0·3	90	13·1	73
St. Pancras	236,455	—	54	29	—	6	—	—	13	—	102	5·6	—	20	3	3	5	—	1	—	1	33	1·8	299	16·5	96
Islington	344,997	—	70	27	—	5	—	1	12	—	115	4·3	—	37	1	4	6	—	1	—	2	51	1·9	417	15·8	106
Stoke Newington	53,217	—	8	9	—	—	—	—	2	—	19	4·7	—	4	—	—	2	—	—	—	1	7	1·7	71	17·4	254
Hackney	230,721	—	55	30	—	3	—	1	24	—	113	6·4	—	20	2	2	3	—	1	—	3	31	1·8	268	15·1	151
Central Districts.																										
Holborn	55,805	—	17	4	—	1	—	—	1	—	23	5·4	—	4	2	1	1	—	—	—	1	9	2·1	85	19·9	82
Finsbury	97,466	—	17	9	—	1	—	1	11	—	39	5·2	—	29	—	—	7	—	1	—	—	37	4·9	166	22·2	117
City of London	21,367	—	11	1	—	1	—	—	—	—	13	7·9	—	1	—	—	1	—	—	—	—	2	1·2	32	19·5	79
East Districts.																										
Shoreditch	116,108	—	27	9	—	—	—	—	5	—	41	4·6	—	14	1	1	11	—	—	—	2	29	3·3	207	23·2	167
Bethnal Green	130,609	—	33	18	—	2	—	—	16	—	69	6·9	—	4	1	2	6	—	—	—	1	14	1·4	202	20·2	107
Stepney	307,176	—	77	33	—	4	—	3	29	—	146	6·2	—	11	3	2	9	—	—	—	10	35	1·5	431	18·3	121
Poplar	170,673	1	25	12	—	1	—	1	10	—	50	3·8	—	4	—	—	9	—	—	—	—	13	1·0	241	18·4	110
South Districts.																										
Southwark	209,143	—	55	21	—	1	—	—	24	—	104	6·5	—	11	2	1	6	—	—	—	4	24	1·5	344	21·4	130
Bermondsey	128,629	—	65	24	—	2	—	—	6	—	97	9·8	—	20	4	4	7	—	—	—	2	37	3·7	216	21·9	117
Lambeth	315,774	—	83	35	—	6	—	1	16	—	141	5·8	—	5	2	3	8	—	1	—	3	22	0·9	391	16·1	109
Battersea	179,622	—	63	12	—	2	—	2	11	—	90	6·5	—	—	—	3	8	—	1	—	5	17	1·2	216	15·7	102
Wandsworth	273,381	—	76	46	—	9	—	3	17	—	151	7·2	—	5	1	6	5	—	1	—	3	21	1·0	281	13·4	94
Camberwell	274,132	—	55	25	—	2	—	1	8	—	91	4·3	—	14	1	2	8	—	—	—	5	30	1·4	369	17·5	144
Deptford	115,495	—	41	7	—	3	—	1	9	—	61	6·9	—	6	1	—	18	—	—	—	4	29	3·3	174	19·6	145
Greenwich	105,350	—	17	21	—	—	—	—	5	—	43	5·3	—	6	1	3	12	—	—	—	1	23	2·8	141	17·4	102
Lewisham	148,463	—	49	17	—	1	—	1	7	—	75	6·6	—	4	1	3	3	—	—	—	1	12	1·1	145	12·7	99
Woolwich	127,345	—	33	26	—	—	—	—	6	—	65	6·7	—	4	—	—	4	—	—	—	1	9	0·9	133	13·6	118
Port of London	—	—	1	—	—	1	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup.

Shoreditch, Poplar, and Camberwell; and the highest rates in Hammersmith, Chelsea, the City of London, Bethnal Green, Bermondsey, Wandsworth, and Deptford. One case of small-pox was notified last month, against six and seven in the two preceding months; this case belonged to Poplar. Six small-pox patients remained under treatment in the Metropolitan Asylums hospitals at the end of last month, against five and ten at the end of the two preceding months. The prevalence of scarlet fever showed a considerable increase over that recorded in the preceding month; the greatest proportional prevalence of this disease occurred in Paddington, Hampstead, the City of London, Bermondsey, Battersea, and Deptford. The Metropolitan Asylums hospitals contained 2192 scarlet fever patients at the end of last month, against 2866, 2580, and 2353 at the end of the three preceding months; the weekly admissions averaged 282, against 296, 271, and 238 in the three preceding months. Diphtheria was rather less prevalent in April than it had been in the preceding month; among the various metropolitan boroughs this disease showed the greatest proportional prevalence in Hammersmith, Chelsea, Stoke Newington, Bermondsey, Wandsworth, Greenwich, and Woolwich. The number of diphtheria patients in the Metropolitan Asylums hospitals, which had been 867, 926, and 924 at the end of the three preceding months, had further declined to 860 at the end of last month; the weekly admissions averaged 103, against 121, 116, and 111 in the three preceding months. The prevalence of enteric fever showed a slight decline from that recorded in the preceding month; this disease was proportionally most prevalent in Fulham, St. Pancras, the City of London, Wandsworth, and Deptford. There were 56 enteric fever patients under treatment in the Metropolitan Asylums hospitals at the end of last month, against 95, 79, and 65 at the end of the three preceding months; the weekly admissions averaged 11 last month and in each of the two preceding months. Erysipelas was proportionally most prevalent in Hammersmith, Hackney, Finsbury, Bethnal Green, and Shoreditch. The 24 cases of puerperal fever notified during the month included three each in Fulham, Stepney, and Wandsworth, and two each in Kensington, Chelsea, and Battersea.

The mortality statistics in the table relate to the deaths of persons actually belonging to the various boroughs, the deaths occurring in public institutions having been distributed among the boroughs in which the deceased persons had previously resided. During the four weeks ending April 28th 6170 deaths of persons belonging to London were registered, equal to an annual rate of 17·0 per 1000; in the three preceding months the rates had been 16·0, 15·9, and 16·2 per 1000. The death-rates last month ranged from 12·7 in Lewisham, 13·1 in Hampstead, 13·4 in Wandsworth, 13·6 in Woolwich, 14·0 in Fulham, and 14·4 in Paddington; the highest rates were 19·9 in Holborn, 20·2 in Bethnal Green, 21·4 in Southwark, 21·9 in Bermondsey, 22·2 in Finsbury, 23·2 in Shoreditch, and 26·4 in Chelsea. The 6170 deaths from all causes in London last month included 610 which were referred to the principal infectious diseases; of these, 293 resulted from measles, 40 from scarlet fever, 52 from diphtheria, 158 from whooping-cough, nine from enteric fever, one from ill-defined pyrexia, and 57 from diarrhœa. The lowest death-rates from these diseases were recorded in the City of Westminster, St. Marylebone, Hampstead, Lambeth, and Woolwich; and the highest rates in Chelsea, Holborn, Finsbury, Shoreditch, Bermondsey, Deptford, and Greenwich. The 293 deaths from measles were 40 in excess of the corrected average number in the corresponding periods of the four preceding years; among the various metropolitan boroughs this disease was proportionally most fatal in Kensington, Chelsea, Islington, Hackney, Finsbury, Shoreditch, and Bermondsey. The 40 fatal cases of scarlet fever were slightly in excess of the corrected average number; the greatest proportional mortality from this disease occurred in Paddington, Hammersmith, Chelsea, Holborn, and Bermondsey. The 52 deaths from diphtheria were 13 below the average for the corresponding periods of the four preceding years; this disease was proportionally most fatal in Fulham, Chelsea, Bermondsey, Wandsworth, Greenwich, and Lewisham. The 158 fatal cases of whooping-cough were 33 below the corrected average number; among the various metropolitan boroughs the mortality from this disease was proportionally greatest in Chelsea, Finsbury, Shoreditch, Poplar, Bermondsey, Deptford, and Greenwich. The ten deaths referred to "fever" showed a decline of six from the corrected average number; one fatal case of ill-defined pyrexia was recorded in the City of Westminster, and one of enteric fever in each of the following boroughs: Kensington, Fulham, St. Pancras, Islington, Hackney, Finsbury, Lambeth, Battersea, and Wandsworth. The 57 fatal cases of diarrhœa were slightly below the average number in the corresponding periods of the four preceding years; among the various metropolitan boroughs this disease was proportionally most fatal in Shoreditch, Stepney, Battersea, Southwark, Camberwell, and Deptford. In conclusion, it may be stated that the aggregate mortality in London last month from the principal infectious diseases was nearly 10 per cent. below the average.

Infant mortality, measured by the proportion of deaths among children under one year of age to registered births, was equal to 114 per 1000. The lowest rates of infant mortality were recorded in Paddington, St. Marylebone, Hampstead, Holborn, the City of London, and Wandsworth; and the highest rates in Chelsea, Stoke Newington, Hackney, Shoreditch, Southwark, Camberwell, and Deptford.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Fleet Surgeon E. J. Morley to the *Ganges*, for Shotley Barracks. Surgeons: J. R. A. Clark-Hall to the *Robin;* J. P. H. Greenhalgh to the *Moorhen;* and R. H. St. B. E. Hughes to the *Vernon* for the *Niger*.

ROYAL ARMY MEDICAL CORPS.

The undermentioned Lieutenants to be Captains (dated March 1st, 1906):—Arthur B. Smallman, Wentworth F. Tyndale, C.M.G., Percival Davidson, D.S.O., William F. Ellis, John McKenzie, Norman D. Walker, Arthur H. Hayes, Henry J. Crossley, Ralph B. Ainsworth, Charles A. J. A. Balck, Reginald Storrs, Raymond L. V. Foster, Frederick A. H. Clarke, George A. K. H. Reed, John W. S. Seccombe, John M. H. Conway, Sydney M. W. Meadows, Herbert V. Bagshawe, Dudley S. Skelton, Charles V. B. Stanley, Hugh G. S. Webb, William W. Browne, Richard Rutherford, William D. C. Kelly, Norman E. J. Harding, and Robert J. Franklin.

INDIAN MEDICAL SERVICE.

The King has approved of the following promotions among officers of the Indian Medical Service and admissions to the Service:—To be Colonel: *Bombay:* Lieutenant-Colonel (temporary Colonel) William George Hume Henderson (dated Nov. 11th, 1905). Captains to be Majors: *Bengal:* Cecil Robert Stephens, Leonard Rogers, and Gordon Travers Birdwood (dated Jan. 30th, 1905); Cecil Charles Stuart Barry, Ernest Alan Robert Newman, J. Gould, Reginald George Turner, James Davidson, and John Mulvany (dated July 29th, 1905); George Yeates Cobb Hunter (dated Nov. 17th, 1905). *Madras:* Eric Harding Sharman and Thomas Howard Foulkes (dated Jan. 30th, 1905); Thomas Sodart, Bhola Nauth, Alfred Eugène Berry, and Herbert St. John Fraser (dated July 29th, 1905). *Bombay:* Hugh Bennett (dated July 24th, 1905). The promotion of Major P. P. Kilkelly is antedated from July 29th, 1905, to Jan 30th, 1905. Lieutenants to be Captains: William Samuel Jagoe Shaw, Charles Seymour Parker, Harold Holkar Broome, Frederick Norman White, Charles Gibbons Seymour, Davis Heron, Thomas Corrie Rutherford, Henry Crewe Keates, Leethem Reynolds, Ernest Charles Taylor, Richard Arthur Needham, Dwarka Prasad Goil, James Kirkwood, and Alfred Whitmore (dated Jan. 31st, 1906). To be Lieutenants: Carl Henry Reinhold, Arthur Falconer Hayden, Broderick Edward Middleton Newland, Lewis Albert Hodgkinson Lack, Edgar John Cecil McDonald, Kenneth William Mackenzie, William Dundas Wright, John Francis Boyd, Vernon Northwood Whitamore, John Catto, Narindra Singh Sodhi, William Jackson Powell, and William Cowan Gray (dated Sept 1st, 1905).

The King has also approved of the retirement from the service of the undermentioned officer: Lieutenant-Colonel Shambhu Chandra Nandi (dated Dec. 6th, 1905).

ROYAL ARMY MEDICAL CORPS (MILITIA).

Captain and Honorary Major (Honorary Captain in the

Army) A. H. Benson resigns his commission, with permission to retain his rank and to wear the prescribed uniform (dated May 12th, 1906).

IMPERIAL YEOMANRY.

Herts: Surgeon-Lieutenant F. E. Fremantle to be Surgeon-Captain (dated May 12th, 1906).

VOLUNTEER CORPS.

Royal Garrison Artillery (Volunteers): 1st Argyll and Bute: John Stewart to be Surgeon-Lieutenant (dated May 12th, 1906). 3rd Lancashire: Surgeon-Major M. J. Fox is granted the honorary rank of Surgeon-Lieutenant-Colonel (dated May 12th, 1906). 1st Sussex: Surgeon-Lieutenant H. H. E. Scatliff resigns his commission (dated May 12th, 1906); Harold Harris Elborough Scatliff (late Surgeon-Lieutenant) to be Second Lieutenant (dated May 12th, 1906).

Royal Engineers (Volunteers): 1st Sussex: Antony Alexander Martin to be Surgeon-Lieutenant (dated April 10th, 1906.

Rifles: 3rd Volunteer Battalion the Cheshire Regiment: Surgeon-Major T. Fennell is granted the honorary rank of Surgeon-Lieutenant-Colonel (dated May 12th, 1906). 1st Volunteer Battalion, the Durham Light Infantry: Surgeon-Lieutenant A. J. Dale resigns his commission (dated April 9th, 1906). A. J. Dale (late Surgeon-Lieutenant) to be Lieutenant (dated April 9th, 1906). 5th (Glasgow Highland) Volunteer Battalion, the Highland Light Infantry: Surgeon-Major G. Bell Todd to be Surgeon-Lieutenant-Colonel (dated May 12th, 1906). 1st (Ross Highland) Volunteer Battalion, Seaforth Highlanders (Rossshire Buffs, The Duke of Albany's): Surgeon-Lieutenant-Colonel J. Adam is borne as supernumerary whilst holding the appointment of Brigade-Surgeon-Lieutenant-Colonel, Senior Medical Officer, Seaforth and Cameron Volunteer Infantry Brigade (dated May 12th, 1906).

ROYAL ARMY MEDICAL CORPS (VOLUNTEERS).

North-East Lancashire Bearer Company: Captain T. Holt to be Major (dated May 12th, 1906.)

WEST AFRICAN MEDICAL STAFF.

The following appointments, dated May 5th, have been made to the West African Medical Staff:—Dr. P. H. MacDonald (Southern Nigeria), Dr. B. Moiser (Northern Nigeria), Dr. W. Rogers (Southern Nigeria), Dr. G. J. Pirie (Northern Nigeria), Mr. A. G. Eldred (Gold Coast), and Dr. H. Kramer (Gold Coast).

Mr. T. E. Rice, L.S.A., senior medical officer in Southern Nigeria, has been transferred to the Gold Coast, vice Mr. K. F. T. Boée, deceased.

Mr. G. J. Rutherford, M.R.C.S. Eng., L.R.C.P. Lond., medical officer in the Gold Coast, to be senior medical officer, Southern Nigeria, vice Mr. T. E. Rice, transferred.

DEATHS IN THE SERVICES.

Surgeon-General Charles Sibthorpe, C.B., I.M.S. (retired), on May 4th, aged 58 years. He joined the Indian Medical Service as assistant surgeon in 1870 and retired in 1900. He served in the Afghan War, 1879–80, with the Peshawar Valley Field Force (medal) and also in the Burmese Expedition, 1885–86, as staff-surgeon to the general officer commanding the expedition and later in medical charge of the headquarters Staff (mentioned in despatches, medal with clasp, and promoted to the rank of brigade-surgeon).

THE ROYAL INDIAN TOUR HONOURS.

The *London Gazette* officially announces that Lieutenant-Colonel Havelock H. R. Charles, I.M.S. (Bengal), professor of surgery at the Medical College, Calcutta, surgeon on the staff of the Prince of Wales during the recent visit of their Royal Highnesses the Prince and Princess of Wales to India, has been made a Knight Commander of the Royal Victorian Order. Fleet Surgeon Robert Hill, R.N., of H.M.S. *Renown*, has been made a Member of the Fourth Class of the same Order.

THE NEW SCHEMES OF ARMY ORGANISATION.

There are naturally an unwonted amount of interest and consideration being extended at the present time to army matters in general and schemes of military organisation. The impending changes will probably be of a very comprehensive and important nature and their consideration must involve numerous questions in which the medical profession, in common with the rest of the nation, will be either directly or indirectly concerned. In the first place, the Secretary of State for War has appointed a strong committee, with Viscount Esher, G.C.V.O., K.C.B., as chairman, to consider how best to give effect to the principles governing the organisation of the auxiliary forces into a territorial army, as described in the speech of the Secretary of State on Army Estimates in the House of Commons on March 8th, 1906. Mr. Haldane, it will be seen, is slowly but surely working out his and the Army Council's scheme of army reform and in attempting to accomplish this in a satisfactory way he is availing himself of all the advice and help which he can obtain by getting a number of military experts and men "of light and leading" to take part in the necessary preliminary deliberations. An interesting and instructive debate took place in the House of Lords on May 14th in connexion with the question of home defence raised by the Earl of Wemyss. The Earl of Portsmouth said that we had a mobilisation scheme under which it was hoped that we could mobilise as quickly as any continental nation. While very plainly dissociating himself from the "blue water extremists" he nevertheless desired to affirm the principle that the navy was, as it always had been, the natural guardian and the only trustworthy defence for the United Kingdom against oversea invasion. The Under Secretary for War also took occasion to add to our information as to the future position of the militia, the volunteers, and coast defence.

EXAMINATION FOR COMMISSIONS IN THE ROYAL ARMY MEDICAL CORPS.

An examination of candidates for not less than 40 commissions in the Royal Army Medical Corps will be held on July 26th and following days. Applications to compete should be made to the Secretary, War Office, 68, Victoria-street, London, S.W., not later than July 16th, on which date the list will be closed. Candidates who are over the regulation limit of age at the date of the examination will be permitted to deduct from their actual age any period of service in the field after Oct. 1st, 1899, that they could reckon towards retired pay and gratuity if such deduction will bring them within the age limit. The presence of candidates will be required in London from July 24th.

REPORT ON ARMY PROMOTION EXAMINATIONS.

A report signed by General Hutchinson, director of staff duties, has appeared setting forth the results of the examination for army promotion in November last, a summary of which has been published in the *Army and Navy Gazette* of last week. We pass over the papers set for, and the marks gained by, the combative ranks and turn to Appendix VIII., B, Majors R.A.M.C., from which we take the following as likely to prove useful and interesting to those concerned. "Army Medical Organisation.—The work submitted was very moderate. There was no undue difficulty in the paper and nothing to prevent a candidate acquainted with the subject from gaining 80 per cent. of the marks. Major C. J. MacDonald, M.D., was the only officer who obtained 0·8. Sanitation and Epidemiology.—The papers submitted in this subject were better than those on previous occasions though as a whole they are not very satisfactory. No officer gained 0·8. The questions were not such as could be answered simply by working up a text-book; they involved all-round practical knowledge and some considerable familiarity with current developments. Selected Subjects.—Major and Brevet Lieutenant-Colonel W. B. Leishman, M.B., and Major T. McCulloch, M.B., obtained 90 per cent. of the marks. Subjects (*h*) ii. and iii., Lieutenants R.A.M.C.—The results are satisfactory. Lieutenants R. L. V. Foster, M.B., M. G. Winder, and G. F. Rugg obtained 80 per cent. of the marks allotted."

REGIMENTAL HOMES.

The report of the Regimental Homes and Benefits Agency, dated April, 1906, published at 11, Tothill-street, Westminster, London, S.W., gives an interesting account of a scheme began in 1901 as a memorial to the late Prince Christian Victor of Schleswig-Holstein, the scope of which was extended in 1904. Briefly, the idea is to help regiments to build homes for disabled soldiers, the homes being the property of the regiments to which they are attached. 49 homes have already been completed and occupied and ten others are in course of building. As the report points out, this is not the first time that permanent homes for old soldiers have been established. The Warwick, Chelsea, and Kilmainham Hospitals were founded long ago. But it is the first time that the provision is made regimentally and in this respect the scheme is entirely new. Moreover, from

the soldier's point of view, the difference is all-important; for he regards a home established by an agency outside his regiment as a charity, whereas his selection by his regiment as an inmate of one belonging to that regiment is considered a privilege and an honour.

Correspondence.

"Audi alteram partem."

THE INFAMOUS ACCUSATION AGAINST DR. A. E. JONES.

To the Editors of THE LANCET.

SIRS,—In your issue of May 5th you commented sympathetically upon the conclusion of the hearing of the charge against Dr. A. E. Jones of assault upon certain mentally defective children during his official examination of them at the London County Council day-school which they attend. Completely successful as was the result of the case, it was, of course, not accomplished without considerable expense which falls entirely upon Dr. Jones. Baseless charges of this kind are unfortunately only too well known to the profession which has always readily shown practical sympathy with the victims of an injustice to which all its members are equally exposed. This case, moreover, displays special features which call for more than usually energetic protest if the status of the profession is not to be seriously jeopardised. All are familiar with the class of persons by whom such false charges are usually brought, but this is the first time that an important public body has supported an accusation of this type which originated with mentally defective children, an accusation, moreover, which the magistrate dismissed without listening to the defence.

It is felt that a subscription to defray Dr. Jones's legal expenses (which amount to £180) would be the most satisfactory way of expressing the sympathy of the profession and of its intention to meet such attacks as a united body. A small committee, consisting of the undersigned, has been organised for this purpose and Sir Victor Horsley has consented to act as treasurer. Bearer cheques may be made payable to, and crossed, Barclay and Co., and sent to Messrs. Barclay and Co., 54, Lombard-street, E.C., or to Sir Victor Horsley, 25, Cavendish-square, London, W.

We are, Sirs, yours faithfully,

S. H. BOWN, CHARLES BOLTON,
P. MAYNARD HEATH, C. WYNN WIRGMAN.

May 16th, 1906.

The following subscriptions are announced:—

	£	s.	d.		£	s.	d.
Mr. Arthur E. J. Barker	5	5	0	Dr. Herbert R. Spencer...	5	5	0
Dr. J. Rose Bradford ...	5	5	0	Dr. G. F. Blacker	3	3	0
Dr. Dudley W. Buxton ...	5	5	0	Mr. Rupert T. H. Bucknall	2	2	0
Sir Victor Horsley	5	5	0	Mr. Raymond Johnson ...	2	2	0
Dr. Sidney H. C. Martin	5	5	0	Mr. M. D. Eder	1	1	0
Mr. Bilton Pollard	5	5	0	Mr. E. S. Weymouth ...	1	1	0

CASEIN AND CASEINOGEN.

To the Editors of THE LANCET.

SIRS,—It is with mingled feelings of pleasure and amazement that I have read the letter of Professor W. D. Halliburton in reply to my protest; the pleasure comes from finding that some of the reasons given for the nomenclature are rational, concisely stated, and ones which I can accept. I am amazed, however, that Professor Halliburton should derive caseinogen from the Latin; the root of *genero* is not *gen*, but *gener*, and I think he will pardon me for not having recognised the Latin origin. Casein is not a Latin word, but judging from the gender of the French and Italian the Latinised form would be *caseina* and a more correct name would be "*caseina-generis*" (I have given the word the termination "in" to indicate its proteid nature). Caseinogen as a word derived from the Latin is but little less objectionable than as a hybrid.

I am still more amazed that Professor Halliburton calls the instance of the confusion that arises from his nomenclature which I pointed out in Dr. Gustav Mann's book an obvious press error; in the index Dr. Mann gives 50 references to casein and two to caseinogen (the word, however, occurs many times in the text in these two references); one and one only of the casein references is to casein in Professor Halliburton's sense: in two of them (pp. 70 and 353) the word caseinogen only and not casein is mentioned in the text, and in the bulk of, if not in all, the other 47 references the word casein is used obviously in the sense of caseinogen. One instance especially may be quoted in full (p. 378): "Fibrinogen, myosin, and casein assume a firm state of aggregation when acted on by certain ferments." This passage clearly shows not only is Professor Halliburton's nomenclature departed from in "casein" but in "myosin" as well, and it cannot be an "obvious press error" when two words are given in the old form. It is the tacit sub-conscious revolt of a scientific mind against what I have ventured to term a philologically barbarous nomenclature. I am again amazed that Professor Halliburton should speak of "antique terminology." Is he aware that in the index of the *Journal of the Chemical Society* for 1905, quite lately published, "caseinogen" does not occur, but the proteid to which he gives this name is called "casein"? Does he know that in the abstracts of the Chemical Society, except in those made by himself, the word "casein" has been used this year? Has he forgotten that in the January number (vol. i., p. 56) he wrote, "A comparison of solutions of casein and para-casein (or as they are usually called in English caseinogen and casein respectively)....."? And is not this a tacit admission that "caseinogen" is still largely called "casein" and "casein" "para-casein"? Does not Dr. Thorpe, an ex president of the Chemical Society and chief Government chemist, use "casein" (Transactions of the Chemical Society, 1905, pp. 214, 216) only last year?

Professor Halliburton asks if I would propose to drop the word "fibrinogen" and call it fibrin; my answer is that fibrin should be retained for the proteid to which it is at present applied; it has priority and is universally accepted. I should like fibrinogen dropped or modified. I am glad to hear that a joint committee of the Chemical and Physiological Societies has been appointed to consider proteid nomenclature but deplore their recommendation; I can only think that they have not had the case against the use of caseinogen put before them. I may say that I do not object to "caseinogenate" on account of its length, I cannot pronounce it euphoniously.

Finally, I would like to recapitulate the chief objections against "caseinogen": 1. It is "philologically barbarous." 2. Casein has priority. 3. It is far from universally used even in England and still less so in America. 4. The German "kasein," the French "caséine," and the Italian "caseina" are generally used and the natural word which occurs for the translation of these is "casein." (The confusion which exists is due to 3 and 4.) 5. It departs from the well-established rule of chemical nomenclature that similar compounds have the same termination. For this very proper reason the old terms "caseine" and "albumen" have been changed to "casein" and "albumin."

It would be quite easy to retain the advantages pointed out by Professor Halliburton and at the same time to abandon "caseinogen."

I am, Sirs, yours faithfully,

H DROOP RICHMOND.

Woodfield-road, Ealing, W., May 12th, 1906.

To the Editors of THE LANCET.

SIRS,—As Mr. H. Droop Richmond has courteously sent me a copy of the letter on this question which he is forwarding to you for publication I am enabled forthwith to add a rejoinder. It shall be very brief and, so far as I am concerned, final, for I am well aware that your space is too valuable for discussions of this nature. I will only say that I am not convinced by Mr. Richmond's arguments and will refer those interested in the question to my letter of last week, as I find myself unable to state my own views any more clearly than I have put them there. The only statement there made which I should like to amend relates to what I said about Dr Gustav Mann's book. The particular case of confusion in the use of the two words under discussion, and which appeared to me to be a printer's error, is not, as Mr. Richmond correctly states, the only instance where the words are wrongly employed. I admit that authors as well as printers are occasionally careless, but I fail to see in that any reason for adopting Mr. Richmond's views. Physiologists in this country have practically unanimously accepted the words caseinogen and casein in the sense in which I have urged they should be used. I feel hopeful now that Mr. Richmond

admits some of my reasons to be rational and acceptable to him that chemists also, when the "tacit subconscious revolt of their minds" has subsided, will fall into line also. When we have set our own house in order it will be time to try to persuade foreign nations to follow suit, and it is the intention of the proteid nomenclature committee, to which I referred last week, to obtain the opinion of other countries regarding their proposals before putting them forward in any authoritative manner.

I am, Sirs, yours faithfully,

W. D. HALLIBURTON.

King's College, London, May 14th, 1906.

THE TRANSMISSIBILITY OF GOITRE.

To the Editors of THE LANCET.

SIRS,—The following history seems interesting enough for publication. A perfectly healthy family came from a village near the Exe and settled here some 36 years ago. No member of the family, so far as they can tell, ever suffered from any enlargement of the neck previously to their coming here. There were three daughters. The youngest went to work at a farm in this village at 15 years of age and rapidly developed goitre. (Another help at the same farm has recently also developed goitre very rapidly.) She left the farm and married and the goitre has persisted but has not increased. Her first eight children were born healthy, the ninth had well-marked goitre and died in infancy from whooping cough, and the tenth, born last month, has also well-marked goitre. All the children were suckled and she is sure that the last two never drank any water at any time. The well water here is extremely hard and goitre was, it seems, very common before the present supply was instituted. It is practically extinct now and I know of no recently developed case except the one at the farm mentioned, which is one of the few places where they still drink well water.

The history is interesting, for it is impossible to doubt that she acquired goitre from a definite source and had apparently no hereditary tendency. After eighteen years, while no longer exposed to the poison, she seems to have communicated the complaint to her offspring. During the last two years she has not drunk any unboiled water by my advice and she has not drunk well water for several years. My books of reference say that goitre is occasionally hereditary and may occur in infancy, but I can find no case similar to the above, which seems to militate against the axiom which tells us that "Acquired peculiarities are not hereditary." It almost suggests that goitre poison is like syphilitic poison and may be acquired and passed on to the offspring.

I am, Sirs, yours faithfully,

O. CLAYTON JONES, M.B. Oxon.

Silverton, Devon, May 7th, 1906.

ANTERIOR OR POSTERIOR GASTRO-JEJUNOSTOMY?

To the Editors of THE LANCET.

SIRS,—In THE LANCET of May 12th, p. 1347, Mr. Edward Ward makes a claim, on Mr. H. Littlewood's behalf, to priority in two "essential features" of the operations of gastro-enterostomy and of intestinal anastomosis, "the use of rubber sheathed Doyen's clamps" and "the excision of elliptical portions of mucous membrane from each organ."

First, as to the use of the clamps. In Mr. Littlewood's paper to which Mr. Ward refers the mention of the clamps is merely incidental. The title of the paper—and it is important to note it—is "Intestinal Suture by Means of Continuous Catgut Stitch, and Excision of the Mucous Membrane." In his preamble Mr. Littlewood, after mentioning some of the mechanical aids used in affecting anastomoses, writes: "At the present time many surgeons have reverted to the earlier practice and have abandoned the use of any special apparatus, and I am amongst those" (implying obviously that he is only one among many) "who believe that all accessory apparatus for intestinal suture will ultimately be discarded and that we shall rely on our fingers, the forceps, and needles and sutures." There is not one word here or in any part of the paper which suggests that Mr. Littlewood considered that he was introducing any innovation in the matter of forceps. Mr. Littlewood himself, therefore, makes no claim whatever in this paper for any priority in the use of clamps in either stomach or intestinal work. Had he done so his claim could not have been substantiated. The use of the clamps in intestinal work was at least 20 years old when Mr. Littlewood wrote. Kocher in 1880[1] describes and illustrates with four figures his method of intestinal resection in which clamps were used. Mr. Thomas Smith (now Sir Thomas Smith) in THE LANCET of Nov. 18th, 1893, p. 1250, referring to an intestinal clamp described in THE LANCET of Sept. 30th, 1893, p. 813, by Mr. W. A. Lane, drew attention to a clamp forceps "which has a more extended application in abdominal operations." "These forceps," he wrote, "have curved, flat blades with a parallel grip and they are made of various sizes; they can be applied to the stomach, gall-bladder, cæcum, intestine, or any cyst wall. Their purpose is to occlude the cavity on the convex side of the clamp and to isolate the part included within the blades during the application of sutures, whether it is for closing a wound or for attaching the part to the abdominal wall. The blades can be sheathed with rubber tubing or used naked." Doyen, whose forceps Mr. Littlewood used, described his *pince à mors élastique* and illustrated their use in stomach surgery in his work, "Traitement Chirurgical des Affections de l'Estomac et du Duodenum," in 1895 (pp. 294, 302, and 303). These references will, I think, suffice to show that the use of clamps was of much older date than 1900 and that Mr. Littlewood has no claim to priority in their use either in stomach or intestinal work. If Mr. Ward had been content to claim for Mr. Littlewood that he used the clamps before any other surgeon in Leeds I should have agreed with him entirely, as I have previously told Mr. Littlewood there can be no doubt whatever about that.

The second point is concerned with the question of the excision of the mucous membrane in anastomotic operations. Mr. Littlewood considered this, as the title of his paper shows, an essential and original part of his procedure. The paper which Mr. Littlewood read was published in THE LANCET of June 29th, 1901, p. 1817. My publication of a paper read before the Mirfield Medical Society appeared in the *British Medical Journal* of Dec. 8th, 1900, p. 1631. In that paper I wrote: "An incision two inches to two and a half inches long is made through the serous and submucous coats only; as they are divided they retract and an ellipse of mucous membrane over half an inch wide in the centre and narrowing off at each end pouts into the wound. Two pairs of nibbed forceps, one towards each end, grip and pull upon the ellipse of mucous membrane, which is then excised."

When Mr. Littlewood read his paper in Leeds I joined in the discussion. He will, I think, remember that I then said I had practised the excision of the mucosa in the way I have described and in my remarks I attributed my thought of this procedure to the "stamping out" process of the Murphy button, which removes a portion of the apposed viscera and so forms an opening in place of a slit. I have, in conversation, since told Mr. Littlewood that I believed that in this matter the priority rested with me. In the first edition of "Diseases of the Stomach," written by Mr. Mayo Robson and myself, I devoted a paragraph (p. 273) to the question of the removal of the mucous membrane in gastro-enterostomy. I put my own opinion and practice first and Mr. Littlewood's second, because I thought then that this was the order of precedence. In later papers I have not hesitated to describe this procedure as due to my own thought and as owing its origin, in my own mind, to the use of the Murphy button.[2] Obviously, then, when this claim for Mr Littlewood's priority is made it is a question of ascertainable fact which is at stake; it is not a question of opinion.

The evidence I offer is this. The first occasion upon which I performed the excision of the mucosa was on June 1st, 1900,[3] the second was on June 6th, 1900, a patient of Dr. H. J. Clarke of Doncaster.[4] This case is not included with the one just named because at the time I believed the condition to be malignant. It is, however, included in my "Report" to the British Medical Association last July, a copy of which I sent to THE LANCET (p. 87).[4] I have changed the case from the "malignant" to the "simple" series, because the patient is alive and in perfect health at the present moment. The third case was on August 1st, 1900.[5] These cases have been on record unchallenged now for over five years and during that time I have repeatedly expressed my belief that

[1] Centralblatt für Chirurgie, 1880, No. 29, pp. 465–469.
[2] Abdominal Operations, p. 157.
[3] See Brit. Med. Jour., vol. ii., 1900, p. 1634.
[4] THE LANCET, July 28th, 1906, p. 326.
[5] See also Brit. Med. Jour., vol. ii., 1900, p. 1634.

this procedure was original in my own mind. Mr. Littlewood has not published any dates of operations performed either in the paper to which Mr. Ward refers or subsequently. It remains with him or with Mr. Ward to put forward now the date of his first operation.

This, then, is my reply to Mr. Ward: First, so far as concerns the clamp. Mr. Littlewood has never given a written hint to the effect that he considers himself to be introducing a new method into the technique of intestinal suture. Had he made any claim to authorship in this matter it could not, in my judgment, and by reason of the evidence I have submitted, with himself as one of the witnesses, have been sustained. If Mr. Ward now makes such a claim for him I shall be interested to hear by what arguments he proposes to establish it. But whether Mr. Littlewood's precedence is or is not asserted is immaterial so far as I am concerned, for neither verbally nor in writing, directly or by implication, have I ever put forward a claim for myself. I hope I make myself quite plain to Mr. Ward. What I have been able to do in the matter of the use of clamps is accurately stated by Dr. Mayo, who says that I have "popularised" them. That I hope and believe to be true. Secondly, so far as concerns the excision of the mucosa, I have from the first and always claimed this as a procedure original with myself. Mr. Littlewood himself cannot, I think, be in any doubt about my opinion. The facts upon which my opinion is based have been published in every relevant detail for five years. If there has been "omission" or "inadvertence" it cannot, I think, be justly imputed to me.

Mr. Ward in his wonder as to the details of the method to which Dr. Mayo attached my name shows that he has not done me the honour of reading the description of the operation of gastro-enterostomy (as I then performed it) which I read before the American Surgical Association in 1903. In two "essential features" I have altered the operation since then. What I now consider them will be seen by reference to pp. 157 and 158 of my book on "Abdominal Operations." I give there eight chief points and the only one common to the operation as I practise it, and Mr. Littlewood's method described in the paper to which Mr. Ward refers, is the excision of the mucosa. In the operation as I practise it to-day there are many "essential points" (as I consider them); some may possibly be original, many may be adopted from one surgeon or another, but the complete procedure is a different operation from any with which the literature of the subject makes me acquainted.

I am, Sirs, yours faithfully,

Leeds, May 14th, 1906. B. G. A. MOYNIHAN.

THE EMPLOYERS' LIABILITY BILL AND PRACTITIONERS IN MEDICINE.

To the Editors of THE LANCET.

SIRS,—Now that the above Bill is before Parliament I would suggest that the different divisions and branches of the British Medical Association and other medical societies take immediate action so that all medical practitioners shall be included in the above Bill. Almost all the illnesses and accidents which attack us come through our dangerous occupation, while each year finds the majority less able financially to provide against sickness, accidents, infirmity, and old age. I am, Sirs, yours faithfully,

Liverpool, May 15th, 1906. ROBERT R. RENTOUL.

DEATHS UNDER ETHYL CHLORIDE.

To the Editors of THE LANCET.

SIRS,—In reference to the death under ethyl chloride reported in THE LANCET of May 5th, 1906, p. 1236, Case 10, by Dr. T. D. Luke, as having occurred at this institution, on page 1236 it is stated that "the administrator was a student who had practically no experience of anæsthetics and the operator was a house surgeon who had performed this operation only on half a dozen previous occasions." Both these statements are incorrect. The anæsthetic was given by the assistant house surgeon who was fully qualified and I was the operator. I have performed this operation very many times, as many, I venture to say, as Dr. Luke has administered ethyl chloride, not half a dozen as stated. I think Dr. Luke should have ascertained the correct facts before publishing any which, if true, would reflect not only on this institution but on myself. As the matter stands it shows a deplorable want of care in the collection of the facts and reflects on the veracity of other statements.

I am, Sirs, yours faithfully,

THOMAS YOUNG SIMPSON,
M.D., B.S. Durh, M.R.C.S. Eng., L.R.C.P. Lond.

Royal Albert Hospital, Devonport, May 14th, 1906.

PELLAGRA NEAR MILAN.

(FROM A CORRESPONDENT.)

THE LANCET is kept well informed of the efforts of the Italian Government, aided by many benevolent societies, to fight the disease which is caused by eating bad maize, or that cereal insufficiently dried or ill preserved. In discussing this question it cannot be too often observed that healthy maize does not produce pellagra, for the dreaded disease is apparently caused by one or more moulds present in the corn, the toxic spores chiefly suspected being the aspergillus fumigatus and the penicillum glaucum. The aspergillus occurs chiefly during the warm months in Italy and seems to be the more important of the two, for though in a test-tube it is killed at 100° C., it is found to live for at least 25 minutes at 85° to 90° C., which is probably quite as high a temperature as that of any oven used by the Italian peasants for baking their bread. Their bread consists of a mixture of maize flour, 16 per cent., and rye flour, 84 per cent. The Italian law of 1902 makes pellagra a notifiable disease; it prohibits the sale of bad maize; and it makes compulsory on the local authorities the construction of drying houses for maize and the treatment and maintenance of pellagrous patients in their homes and in special retreats; the expenses are partly borne by the central Government. But, like many other things in Italy, it is to be feared that these regulations, so excellent on paper, are not very thoroughly carried into practice. I can, however, vouch for the utility of one of the chief retreats—that for the province of Milan at Inzago which I lately had the pleasure of visiting with the enthusiastic director, Dr. G. Friz, who has devoted some 30 years to the consideration of pellagra and to attempting to improve the condition of the poorer peasants. The retreat is built in the midst of agricultural fields, for the accommodation of some 50 young people aged from 12 to 24 years, most of whom are children of pellagrous parents and have already shown the first signs of the disease. The early symptoms discovered are usually giddiness, stupidity, depression of spirits, general debility, loss of appetite, a feeling of burning or of fulness at the epigastrium, diarrhœa and erythema or dry desquamating skin on the dorsum of the hands and feet or at the neck. The retreat has been constantly used since it was founded in 1890, since when about 1200 boys and girls have undergone a six months' treatment, for each sex is treated in turn. The average gain in weight is from four to 26 pounds during the six months, which shows that the rations are good. The diet is varied and once a week they are allowed to have maize flour in their favourite *polenta*. They are taught by some devoted sisters of mercy with the result that whereas only 6 per cent. can read and write on admission 42 per cent. have acquired these arts before leaving. Every day they have one hour's lecture on elementary personal hygiene and the rest of the day is spent in work out of doors. The boys till the fields round the house and are specially taught why bad seed should not be planted, and why cereals must not be harvested unripe, and must be well dried and then kept dry. The girls are taught sewing and knitting and everything relating to silkworms and their successful development, including some knowledge of the mulberry tree, which is so common in that district. Dr. Friz also visits the homes of the young people in order to see whether the parents are really poor and to keep an eye on the patients who have passed through his hands.

The number of peasants in Milan province now affected by pellagra is said to be 12 per 1000, while at Bergamo the number is 20 per 1000. It is interesting to remember that the first hospital for the treatment of pellagra was opened in 1784 at Legnano under the auspices of the Council of the Duchy of Milan. The total number of pellagrous cases in Italy is now said to be 72,000.

I took the opportunity while in this neighbourhood of

renewing my acquaintance with the County Lunatic Asylum of Milan at Monbello. There were 857 admissions during last year and the number of patients remaining on Jan. 1st, 1906, was 1883, the two sexes being almost equally divided. The total number of pellagrous admissions during last year is entered in the report as 62, but that cannot in any way represent the number of lunatics who are pellagrous, for in every courtyard I found at least a dozen pellagrous lunatics. The deaths from pellagra during the year were 13 men and 22 women. At this spring time of the year the erythema can be very well seen on the exposed parts of the body. This asylum is now under the direction of Dr. G. B. Verga, the nephew of a professor whose name is well known in pellagra literature, and he is aided by ten assistants, one of whom, Dr. Rossi, is doing some excellent microscopic work.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

The New Pathological Department of the University.

ALTHOUGH a certain number of details have yet to be dealt with the new pathological department is practically complete and work has commenced in it. The new department may be entered either through the old pathological department, which is still retained for histological classes, or by a special entrance in the new buildings. In the basement are the animal rooms, the operating room, the mortuary, a centrifuge room, and a projection room and associated dark room. On the ground floor, to the left of the main entrance, is the assistants' room, and to the right is the private room of the special demonstrator for public health work. At the back on this floor is a beautifully lighted and splendidly fitted bacteriological class-room from which there is access to the histological laboratory. In addition there is a room which will be devoted chiefly to kymographic work. On the second floor are the private rooms of the professor and the demonstrator, a large clinical room, and a balance room. On the third floor are a laboratory reserved for the private use of the medical officer of health and a large research laboratory. In addition to the main rooms there are a number of smaller rooms for special research work, all admirably designed and fitted, well lighted, and well ventilated. The department is an important addition to the resources of the University and the city and it provides unsurpassed facilities both for teaching and for research.

Playgrounds for City Children.

It is well known that the healthiness of town districts depends very much upon the plentifulness and freedom of their air-supply. Apparently the conditions in Birmingham as regards air-supply and open spaces are very unsatisfactory, for Dr. J. Robertson, our medical officer of health, who has been making investigations upon the subject, points out that when public parks and other open spaces are taken into account Birmingham is in a worse position than other manufacturing towns of this country. Taking eight of the largest manufacturing towns—Newcastle, Bradford, Bristol, Manchester, Nottingham, Liverpool, Sheffield, and Birmingham—the number of people per acre of park and open space increases from 206 in the case of Newcastle to 1026 in Birmingham. Birmingham is unfortunate also in the fact that the areas to the south, north, and north-west of the city are built upon and densely populated, and the air coming to us from them is therefore more or less deteriorated as contrasted with that which reaches some of the more favourably situated cities. Moreover, we have no large river passing through our midst to sweep in fresh air with the flow of its stream. Dr. Robertson finds that in many of our central districts the only places in which the children can play are inclosed and in some cases unwholesome courtyards and it is not possible for the children to get to satisfactory open spaces where there are trees and shrubs. It is, of course, impossible, on account of expense, to provide parks in these central districts but it is occasionally possible to acquire small areas which can be opened up and transformed into wholesome playgrounds which will serve also to increase the air-supply of the surrounding buildings. Opportunities of this kind, however, are allowed to slip by because it is no one's duty to take advantage of them and to obviate this it is proposed to form a committee to promote the formation of an association the members of which will unite in an attempt to provide the central districts with as many open playing spaces as possible. Besides the medical officer of health, Councillor Nettlefold, Professor Muirhead, Professor Ashley, and Mr. Kirkaldy are taking a prominent part in the movement. It is to be hoped in the interests of the city's health that a powerful association will be formed and that the object desired will be attained.

The Health of the City.

During the last three weeks the death-rate of the city has fallen steadily from 21·4 per 1000 to 16·9 per 1000. Deaths from most of the zymotic diseases have decreased, but for a brief period there was a decided rise in the notifications of scarlet fever. This, however, was merely a passing fluctuation from which there was a prompt recoil and there is obviously no reason to fear an epidemic.

Canal-boat Life.

In THE LANCET of April 7th I drew attention to the difficulty which Dr. J. D. McCrindle (assistant medical officer of health) had experienced in getting information regarding the deaths of children born on canal boats. A lurid side-light has been thrown on this matter during a recent investigation in the Wolverhampton coroner's court into the cause of death of a child three weeks old. The mother stated that the child was prematurely born and that she had had 15 children, nine of whom had died in infancy. She added that she worked on the boat to within a short period of each birth. It was asserted at the same inquiry that two cases were known in one of which only one child out of 14 survived and in the other all the eight children born died in infancy. The coroner commented strongly on the matter and expressed the hope that some action would be taken to prevent women working at such critical periods of life.

May 15th.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

Liverpool School of Tropical Medicine.

THE King of the Belgians has sent to Sir Alfred Jones, the chairman of the School of Tropical Medicine, a letter intimating a contribution of £2600 to the funds of the school. This sum is in addition to the large amount which King Leopold has already contributed to the school. Sir Alfred Jones has also received a letter in the following terms from the Secretary-General of the Congo Free State in Brussels: "Referring to our recent conversation, I beg to confirm to you that the Government of the Congo Free State has resolved to bear the expense which was occasioned by the visit of the members of the Liverpool School of Tropical Medicine during their sojourn in the Congo. These expenses, which include in a general way the maintenance of the expedition, the salaries of the attendants, and transport expenses, amount to £1421. The Government desires by this decision to show its sympathy with the philanthropic work undertaken by the School of Tropical Medicine and with the spirit in which its members acquitted themselves in their mission to the Congo." Dr. Jacques of Brussels has been deputed by the King of the Belgians to attend the course of instruction under the auspices of the Liverpool School of Tropical Medicine.

Joint Matriculation Board of the Universities of Liverpool, Manchester, Leeds, and Sheffield.

The arrangement whereby the matriculation examination can be held in July at a school as a form examination under the ordinary regulations requiring candidates to offer five subjects and not allowing them to offer more has been extended to meet the case of schools in which the curriculum demands six subjects. In such a case a form will be allowed to take six subjects provided that either Latin or Greek is included among them. In order to obtain a matriculation certificate a candidate must satisfy the examiners in the two obligatory subjects and in three of the optional subjects, one of the three subjects being a language.

The High Death-rate of Liverpool.

At the weekly meeting of the health committee of the city council held on May 10th the chairman referred to the high death-rate, which during the past week was 27 per 1000,

and said he thought that it was only right that something should be done to diminish it. The chief causes of the increased rate were old age, the weather, the epidemic of measles, and infantile mortality. He suggested that the medical officer of health (Dr. E. W. Hope) should prepare a comparative statement of the death-rates in the different districts and submit it to the committee which could then consider the steps to be taken in those districts where the highest death-rate occurred. Crewe appears to be in a much more fortunate condition than Liverpool, as in the former town the death-rate during the month of April reached the remarkably low figure of 8 per 1000, establishing a record in its history. The medical officer of health (Dr. A. J. Laird) in his weekly report states that this happy result is due to the comparative freedom from infectious disease among children and to the low infantile mortality.

Cheshire New Nursing Association.

A large and influential meeting, convened by the Duke of Westminster, was held on May 5th in the council chamber of Chester town hall to consider the advisability of forming a county nursing association for Cheshire. The Duke of Westminster presided and the attendance included the Earl of Crewe, the Bishop of Chester, Lord and Lady Stanley of Alderley, Sir John Brunner, Bart., M.P., and others. The association maintains a nurse who visits the districts, reports to the local committees, and gives help and advice when required. It also keeps a reserve of two or three nurses available as substitutes. The Duke of Westminster explained that some time ago it was suggested to him that it would be desirable to convene a meeting of those interested in the county for the purpose of starting a county nursing association. There were many local nurses employed in Cheshire, but the local committees acted independently and it was with the idea of bringing those local committees together that they hoped to justify the existence of a county nursing association. Influential support had already been promised but he would like to lay stress upon the fact that that was not a scheme which should merely be supported by influential people but that it should be maintained by the help of the whole county. Miss Hughes, general superintendent of the Queen's Institute, gave an interesting address on the work of the county associations, pointing out their great advantages. The Earl of Crewe moved:—

That a county nursing association for the county of Chester be formed, this meeting fully recognising the advantage of forming such an association.

He said that scientific nursing had only really moved during the last 50 years and it had always been associated with the name of Miss Florence Nightingale. He alluded to the admirable work done by the Queen's Jubilee nurses. The Bishop of Chester seconded the motion which was unanimously carried. The Duke of Westminster was elected president, and the list of vice-presidents included the Duchess of Westminster, Katherine, Duchess of Westminster, the Earl and Countess of Crewe, the Earl and Countess of Stamford, the Bishop of Chester, Lord and Lady Newton, Lady Stanley of Alderley, Mrs. Henry Gladstone, Sir John Brunner, and others.

May 15th.

WALES AND WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENTS.)

Bristol Lunatic Asylum.

THE visiting committee of the Bristol Lunatic Asylum at Fishponds in its forty-ninth annual report, which has just been issued, states that on Dec. 31st, 1905, the number of inmates in the institution was 944 (418 males and 526 females). The highest number in residence at any period during the year was 957. Plans providing for further accommodation for 59 male patients have obtained the approval of the Commissioners in Lunacy and the work will shortly be commenced. The committee adds that it has reduced the weekly charge of maintenance from 11*s.* to 10*s.* 6*d.*, and in conclusion records its appreciation of the way in which the duties connected with the institution have been performed by the medical superintendent (Dr. J. V. Blachford) and staff.

The Somerset Education Committee and Medical Certificates.

At a meeting of the Somerset education committee held at Bridgwater on May 8th the school attendance committee reported that as the medical practitioners of the Taunton rural district did not approve of the county committee's scale of fees they refused to grant medical certificates in cases of absence from school through alleged illness and the district sub-committee had accordingly been instructed not to ask for medical certificates.

Vaccination at Stonehouse.

At a meeting of the Stonehouse board of guardians held on May 10th a discussion took place concerning the cost of vaccination. It was stated that the vaccination fees for the past quarter were £48, compared with £24 for the corresponding quarter of 1905. The clerk said that the increase of expenditure was due to the present small-pox scare.

District Nurses for the Poor at Plymouth.

A scheme has been initiated by Countess Fortescue, wife of the Lord-Lieutenant of Devon, and the Earl of Mount Edgcumbe with a view to provide nurses for the poor of the "Three Towns" and eventually to establish a training home similar to the institution at Plaistow. An influential committee has been appointed and £250 have been already promised. It is intended to affiliate the branch with the Devon County Nursing Association and with the Queen Victoria's Jubilee Institute for Nurses. At an early date a public announcement will be made of the scheme with an appeal for financial help.

May 14th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Scottish Poor-law Medical Officers.

LAST week a deputation waited upon the Secretary for Scotland with reference to the position of the Poor-law medical officers in Scotland. Mr. W. L. Muir of Glasgow, the secretary of the Scottish Poor-law Medical Officers' Association, stated the case for the deputation and drew attention to several grievances which they wished to see remedied by legislation. First, they desired to have an application to the Local Government Board in cases of unjust dismissal by the parish council, there being, as they contended, many cases in which that power was harshly and unreasonably exercised. They pointed out that in some remote districts dismissal might mean absolute ruin to the medical officer. In the second place, they claimed to have a right to order an invalid diet for paupers without an appeal to the inspector of poor who had at present the power to veto any special diet which they prescribed. Thirdly, they urged that powers should be given to erect from parochial funds dwelling-houses for medical officers, there being many parishes in which they could not obtain proper accommodation. In the fourth place, they contended that they should be granted a suitable annual holiday when the greater part of their income was derived from parish sources. (At present they could not obtain a holiday without paying four guineas a week for a locum tenens.) Fifthly, they urged that a uniform fee of one guinea should be given for granting a lunacy certificate. At present there was a great diversity in the fees that might be paid by the parish council for those cases and in many instances the medical man got nothing at all. They also urged that there should be a special fee for special cases which they had to attend. In substance, they asked that they should be put in the same position as the Poor-law officers in England and Ireland. Their education and duties were the same and their status ought to be made at least as satisfactory. They further suggested that there should be a special Government subvention for the outlying islands and poorer parts of the Highlands. The Secretary for Scotland promised to make full inquiry into their complaints.

Lodging-houses on Fire.

A series of regulations has been drawn up by the special committee appointed by the corporation of Glasgow to report upon the disastrous fire which occurred some months ago in a model lodging-house in the city and which resulted in the loss of so many lives. The regulations will commend themselves to everyone who has realised the possibility of fire in these crowded lodging-houses. The provision, in particular, that every lodging-house or hotel with sleeping accommodation for over 100 persons should have at least two adequate means of exit to the street is a wise proposal,

though it may cause some inconvenience and expense to the proprietors. It may not prevent fire but it will at least minimise the consequences of a serious outbreak so far as loss of life is concerned. The prohibition of smoking and the use of lighted matches or candles in the dormitories is also, no doubt, a wise precaution but it remains to be seen whether this will be able to be enforced rigorously.

Port Glasgow's Insanitary Central Area.

The medical officer of health of the borough of Port Glasgow, in submitting his annual report, states that much of the disease in Port Glasgow is due to the insanitary housing of the poorer classes. Writing of the central area of the town, he says that the whole of this area is an unhealthy area within the meaning of the Housing of the Working Classes Act. Within that area nuisances abound. The principal and most apparent nuisance arises from the lack of water-closet accommodation. Lacking that, the "ashbins" become unspeakably filthy. He quotes sections of the Burgh Police Act which empowers the local authorities to require the introduction of water and a jawbox into each house in some window recess or other well-lighted place, and points out that if this provision alone were enforced in the central area of Port Glasgow it would bring about a sanitary revolution there.

Crusade against Consumption.

For some time past the authorities in the larger towns of Scotland have been making efforts to stamp out, or at least to control, the spread of consumption in their midst. It is with considerable gratification that the smaller towns are attending to their responsibility in this matter within their own borders. The public health department of Greenock has agreed to recommend that a system of voluntary notification of consumptive cases should be adopted; that leaflets should be issued bearing on the treatment of the disease; and that the directors of Greenock Infirmary should be approached with the view of obtaining a few beds in one of the unused wards of the hospital. Helensburgh also has decided to try voluntary notification and in the meantime the emergency hospital is to be utilised for the treatment of those suffering from this disease. It is worthy of note also that Clackmannan County Council is printing and circulating broadcast throughout the county a short treatise on consumption by the county medical officer.

May 15th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Health of Dublin.

AT the usual fortnightly meeting of the public health committee on May 1st Sir Charles Cameron, medical officer of health of the city, reported that the death-rate during the previous fortnight was 27·4 per 1000 persons living and stated that this was the lowest record since the accurate registration of deaths was commenced. It is still high, however, and among adults is largely due to enteric fever. At the last meeting of the managing committee of Cork-street Fever Hospital on May 10th the registrar reported that many cases of that disease of a very severe type had been admitted. The corporation is aroused and is now attempting to deal with the tenement house problem by building new houses for the artisan class, while an effort has been made to secure a safe supply of milk. Mr. T. J. Lawler has proposed a motion in the council, which was seconded by Dr. J. C. McWalter, and adopted, that the council should take steps:—

To cause all consignors and consignees of milk coming into the city to be registered; to have certified that all such milk was taken from cows free from tuberculosis; that the premises in which the cows were housed were in a sanitary condition; that the premises used for storing the milk should be clean; that no infectious disease was amongst the employés concerned in the collection or storage of such milk; that the vessels used in storage and transmission of such milk were clean.

Mr. Lawler remarked that 50 per cent. of the milk used in the city of Dublin came from the country and within the past two years not so much as one pint of that milk had been examined in any way before it was used by the inhabitants. He said they had in the city over 300 dairies which were compelled to comply with the duties imposed on them by the by-laws of the corporation, while the greater portion of the milk was supplied without any restrictions or supervision whatever. In reply to an objection as to the practical difficulty of carrying out his scheme, the proposer of the motion said that the Liverpool corporation had in force a law similar to that which he suggested that they should adopt in Dublin. The motion was carried and despite the difficulties put upon the executive the citizens of Dublin will probably be found on the side of reform. Many statements have appeared during a long period as to the number of deaths among infants in this city and the uniformly high death-rate in Dublin is affected by the infantile mortality—points which are in favour of supervising the milk-supply.

National Maternity Hospital, Holles-street, Dublin.

The monthly meeting of the board of the National Maternity Hospital was held on May 8th, the Very Reverend Canon Fricker, P.P., presiding. The governors proceeded to elect an intern assistant physician in the place of Dr. John J. O'Hare whose three years' term of office was ended. There were three candidates for the position, of whom Mr. A. Roche had a majority of votes and was elected.

The Health of Belfast.

On May 8th a conference was held in Belfast under the auspices of the "Citizens' Association" in reference to the alarmingly high death-rate in the city. The meeting was convened by circular and was representative of the various public organisations in Belfast. The chairman (Mr. S. H. Woods), in opening the proceedings, pointed out that as a result of the recent discussion in the Belfast papers on the high death-rate from pulmonary tuberculosis the public had become alarmed and dissatisfied. Incidentally he paid a high compliment to Professor J. W. Byers for what he styled the "illuminating information" which he had given in his articles. Dr. W. Calwell (President of the Ulster Medical Society) brought forward the first motion:—

That the alarmingly high death-rate of Belfast, especially from tuberculosis in its various forms, demands vigilant attention from the citizens and vigorous action by the responsible authorities, and shows the urgency and imperative necessity that the city council should secure the highest specialised professional skill and lengthened experience available in the United Kingdom for the oversight of our public health.

In support of the words "alarmingly high death-rate of Belfast" Dr. Calwell quoted a number of figures from tables which were circulated amongst the audience. In 1904 Belfast was seventy-fifth to seventy-seventh out of 82 large towns in the United Kingdom in its high death-rate, 20·9. In 1903 Belfast was seventy-seventh out of 80 large towns, in 1902 it was seventy-seventh out of 80 towns, and in 1901 it was thirty-sixth out of 37 large towns. Practically Belfast during these four years had the worst death-rate in the United Kingdom, with the exception of Dublin, Liverpool, and Wigan. The two latter cities had a higher death-rate than Belfast on two occasions and so were equal. Such figures showed that the death-rate of Belfast was "alarmingly high." Turning to pulmonary tuberculosis, Dr. Calwell showed the death-rate to be worse than in Leeds, Nottingham, Glasgow, and Liverpool, while the only form of tuberculosis mentioned in the health report of Belfast was pulmonary tuberculosis. As to zymotic diseases, with the exception of typhoid fever Belfast came fairly well out of comparison with other cities but the annual report for the last six years or so had made no mention of the increase of insanity, of cancer, of heart disease, of pneumonia, of rheumatic fever, and of alcoholism; he then referred to the very unsatisfactory nature of the health reports of Belfast in other respects. In the report for 1899 it was regretted that information was not forthcoming concerning the causes of death in 4063 cases out of 7933, the other 3870 deaths being due, 2865 to chest affections and 1005 to zymotic diseases. In the report for 1904 information was not forthcoming concerning the causes of 3700 deaths, and Dr. Calwell hoped that the corporation would appoint a specialist in public health to advise them. The motion was seconded by Mr. W. Crawford, J.P., chairman of the board of management of the Royal Victoria Hospital and carried. Mr. John Murphy (secretary of the Trades Council) then proposed the following motion:—

That the impending resignation of the superintendent medical officer of health presents a unique opportunity to the city council for the appointment of an experienced medical officer possessed of the highest scientific knowledge and training in public health matters, and for such changes in the constitution of the health department as may be required for carrying out necessary reforms, and this conference is of opinion that the city council should take action accordingly.

This was seconded by Dr. Clarke Robinson and carried.

Finally, on the motion of Mr. G. W. Ferguson, it was decided to forward copies of these resolutions to each member of the city council and to appoint a committee to take steps on behalf of the citizens for the furtherance of the objects in view. Accordingly, upon a very influential committee of citizens of Belfast the following medical men were appointed: the chairman (Dr. Calwell) and the secretary (Dr. T. Houston), Dr. J. R. Davidson, and two others (to be appointed by them) from the Ulster Medical Society, Professor Byers, Professor T. Sinclair, Professor J. A. Lindsay, Sir William Whitla, Dr. A. Dempsey, and Dr. C. Leathem.

The Retirement of the Superintendent Medical Officer of Health of Belfast.

Dr. Henry Whitaker having resigned the position of superintendent medical officer of health of Belfast, great interest is being taken in the appointment to be made by the city council as to his successor. It having been suggested in the Belfast papers that the Citizens' Committee had a particular candidate in view, the following motion was unanimously carried at a very fully attended meeting on May 14th of the new Citizens' Health Committee appointed at the conference held on May 8th:—

That the attention of this Citizens' Health Committee having been called to certain statements circulated and also conveyed by innuendo in the public press on Monday, the 14th inst., it is hereby resolved that this committee emphatically repudiates, both collectively and on the part of its individual members, any interest whatever in the candidature of any persons, local or otherwise, and reiterates its adherence to the principle outlined in the resolutions of the representative meeting lately held—namely, that the appointment to the office of medical superintendent officer of health should be made only by open selection from the highest specialised professional skill available in the United Kingdom.

The City Infectious Diseases Hospital, Belfast.

Mr. P. C. Cowan, inspector of the Local Government Board, held an inquiry in Belfast on May 11th with reference, *inter alia*, to an application from the corporation of Belfast to borrow £25,000 for completing and furnishing the new infectious diseases hospital at Purdysburn, Belfast, which it is hoped will be ready for opening next August.

May 15th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Changes in the Curriculum of the Paris Faculty of Medicine.

THE President of the Republic has signed a decree which has been submitted to him by the Ministers of Public Instruction and of the Interior and which will involve some modifications of the existing course of medical study. It provides, for instance, that third-year students shall attend the practice of a lying-in hospital for four months and during a further period of four months in the same year shall attend one of the special departments for the treatment of diseases of the skin and syphilis, mental diseases, diseases of children, diseases of the eye, and diseases of the urinary passages. Attendance on these courses shall last from Nov. 1st to June 30th. The students shall take up the subjects in such a manner that four months may be given to medical work and four months to surgical work. The decree will come into force on Nov. 1st and the Ministers of Public Instruction and of the Interior, each of them so far as his department is concerned, will be responsible for carrying it out.

The Manual Treatment of Sciatic Neuralgia.

M. Berne is of opinion that massage almost always relieves the various neuralgias of the sciatic nerve and that when combined with certain manipulations it very often yields a successful result in obstinate cases, always provided that the disease is peripheral and neuritic in character; cases of central origin are not amenable to the treatment. When there are lameness and muscular retraction straightening of the limb may be tried. M. Berne has for the last 20 years employed what he designates as "the knee method." The sciatic nerve, passing between the posterior border of the great trochanter and the ischium, rests, as is well known, on the spine of the ischium, against which the flattened trunk of the nerve can be easily compressed after leaving the pelvis. It occurred to M. Berne that this anatomical arrangement might be made to serve a therapeutic purpose by enabling the nerve to be compressed against the adjacent bony surface and he described his procedure at a meeting of the Société de Médecine de Paris held on April 28th. Having caused the patient to lie at full length in the dorsal position on a low couch, M. Berne stands on the affected side. If the sciatica is in the right thigh M. Berne flexes his right knee and holds it firmly against the patient's right sciatic notch; he then seizes the extremity of the patient's right lower limb and flexes the thigh on the pelvis with the leg extended on the thigh. In this way he exerts gentle progressive stretching, quite free from danger, and not requiring the administration of chloroform. This method has given excellent results in old cases of sciatic neuritis occurring in patients who had derived no benefit from the ordinary and recognised forms of treatment. In the manual treatment of sciatica M. Berne is in the habit of supplementing this extension by various movements, including active and passive adduction and abduction of the affected limb, together with movements of circumduction and flexion combined with rotation of the trunk. All these manipulations are, however, of secondary importance in comparison with the prompt and effectual action of the "knee method." It is important to remember that, as already mentioned, the disease must be some form of sciatic neuritis having a peripheral origin. In reply to M. Coudray, who asked a question relative to sciatic neuralgia due to the presence of dilated veins at the point of emergence of the sciatic nerve, M. Berne said that he had seen cases of this kind, in which the pain was caused by varicose veins pressing on the nerve, but he had always declined to undertake the treatment of them because they were purely surgical cases which could only be dealt with by removing the conditions which brought about the compression.

The Cause of the Hair turning White.

This interesting question was discussed by M. Metchnikoff at a meeting of the Academy of Sciences held on May 7th. One of the explanations which have been suggested for the hair turning white is that the individual hairs become dry with age and that the air penetrating into their interior destroys their pigment. Others have said that the colouring matter of the hair of any part of the body (*des poils et des cheveux*) disappears under the influence of a chemical substance. M. Metchnikoff, however, is persuaded that the whitening of hair is a vital phenomenon due to cellular activity. Hair, according to him, is not an inert material; it is alive and is composed of living cells provided with prolongations which envelop and destroy pigmentary substances in contact with them. These "chromophagic" cells in this way gradually destroy the colouring matter of the hair and spread in each direction both towards the root of the hair and towards its extremity. This may be recognised by the fact that after the greater portion of the hair has become white the root still remains coloured. M. Metchnikoff has observed that the hair of women who use curling tongs heated to 60° or 70° C. is comparatively slow to lose its colour. The heat destroys the chromophagic cells. In order to make a scientific study of the whitening of hair M. Metchnikoff used animals whose hair is white in winter and dark in summer, and in this way he found that in some species of Russian and Alpine hares the change from dark to white follows the same course as in the human subject. Moreover, when a person's hair turns white in a single night under the influence of mental shock it is certain that the change is due to excessive excitation of the chromophagic cells which thereupon destroy the colouring matter of the hair in a few hours.

An Oceanographic Institute in Paris.

The Prince of Monaco has written to the French Minister of Public Instruction announcing that he has founded an oceanographic institute to be established in Paris. He has presented to this institute the Oceanographic Museum of Monaco, including laboratories, collections, aquariums, and whatever pertains to them, and for its support he has provided a capital sum of 4,000,000 francs. The institute will be built on the land which the University of Paris, in conjunction with the Prince, has just acquired in the Rue St. Jacques and the Rue d'Ulm. The statutes of the institute provide that its scientific work shall be under the control of an international committee (*comité de perfectionnement*), the membership of which shall be open to eminent authorities in the various departments of oceanography irrespectively of the country or nation to which they belong. The Minister of Public Instruction has directed M. Casimir-Périer to convey to the Prince the thanks of the French Government for his

magnificent gift, the value of which exceeds 10,000,000 francs.

Successful Ligature of the Axillary Artery for Aneurysm.

At a meeting of the Surgical Society held on May 2nd M. Lolson described a case in which a man, 27 years of age, had received a wound from a revolver bullet in the region of the left axilla. The aperture of entrance being in the side and that of exit near the spinal border of the scapula it seemed probable that the thoracic cavity had not been traversed, and this opinion was confirmed by the subsequent progress of the case. On the following day the radial pulse was quite perceptible but there was some interference with sensation and motion in the region supplied by the musculo-spiral and ulnar nerves. These symptoms did not become worse as time went on, but at the end of a month the axilla contained a tumour which had all the characters of an arterial aneurysm. On an operation being performed it was found that the whole length of the axillary artery was occupied by a pouch which could be separated from the median nerve but not from the musculo-spiral and ulnar nerves. Removal of this pouch being impossible the vessel was ligatured above and below it. The tumour eventually disappeared but there was no radial pulse, and in addition there was partial paralysis of the musculo-spiral and ulnar nerves.

The Prophylaxis of Syphilis.

At a meeting of the Academy of Medicine held on May 8th M. Metchnikoff read a paper on Some New Facts in Experimental Syphilis. After having referred to his own experiments and those of other observers on anthropoid apes and other monkeys concerning the inoculation of syphilitic matter and the production of syphilis in these animals, he mentioned that a chimpanzee, some macaques, and some baboons had been inoculated with syphilitic matter, and at varying times from one to 18½ hours after inoculation the site of inoculation had been treated with ointment containing various mercurial salts. In all the animals so treated the syphilitic virus had not produced its usual effect. These experiments were so encouraging that M. Metchnikoff determined to try the same experiment upon a human being. A student of medicine at the Faculty of Paris offered himself as a subject. He had finished his medical studies and so was fully cognisant of the object of the experiment and of the possible risk which he ran. He had never had syphilis, either hereditary or acquired. Accordingly, on Feb. 1st M. Metchnikoff, in the presence of Dr. Queyrat, Dr. Sabouraud, and Dr. Salmon, inoculated the student in the balano-preputial groove on the left side with syphilitic matter taken from a hard chancre of one month's duration, and on the right side with syphilitic virus from a hard chancre of between nine and ten days' duration. Portions of both types of virus were also inoculated into four Javanese macaques. One hour after the inoculation of the virus the inoculated parts of the student and of one macaque were rubbed for five minutes with an ointment consisting of 30 grammes of lanolin and ten grammes of calomel. 20 hours after inoculation the inoculated part of the second macaque was also rubbed with the ointment. The two other macaques were left without treatment as controls. Two days later the site of inoculation in the student showed no trace of inflammation; the marks of the scarifications were, however, obvious but even they disappeared within a day or two afterwards. On the prepuce of the student but at some distance from the site of inoculation there were two or three herpetic vesicles which disappeared in two days' time, but this was an eruption to which the patient had been subject before. No sign of syphilis had presented itself in the student, although the two control macaques developed typical syphilitic lesions, and of the two macaques which were treated with the ointment the one which was treated 20 hours after inoculation developed a primary chancre after 39 days of incubation. The one which was treated an hour after inoculation showed no sign of syphilis. M. Metchnikoff concluded by saying that this experiment is a proof that calomel ointment applied one hour after inoculation of syphilitic virus is capable of preventing the development of syphilis in man as it is in monkeys. It also proves that after 20 hours the ointment has no preventive action. He therefore has come to the conclusion that it is fair to state that calomel ointment can be utilised in the prophylaxis of syphilis. He allowed, however, that the experiment upon the student was not absolutely complete, for the control experiment which would consist in inoculating syphilitic virus without being followed by local frictions with mercury ointment had not been carried out, but he would mention that he himself had been scratched (*griffé*) by a syphilitic monkey. He had immediately rubbed the place with calomel ointment and had sustained no damage.

May 14th.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Statistics of the Sick Clubs.

STATISTICAL returns relative to the sick clubs established under the workmen's insurance laws have been recently published by the Imperial Statistical Office. These figures show that in 1903 the total number of members was about 10,000,000, as compared with 4,250,000 in 1885. It must be remembered that membership is compulsory for workmen engaged in industrial employments, but not for agricultural labourers, so that the enormous increase in the number of members shows the development of industrial pursuits in Germany during the past 20 years. As a rule, though not always, the clubs are constituted so that in small places there is only one club for workers of all trades, whilst in the greater towns every trade or branch of industry has its own club and even in the case of certain great factories separate clubs exist for their workmen. Apart from these local clubs there are free clubs the members of which are spread throughout Germany. These free clubs are supported and administered by the workmen alone, whilst in the others the employers have to pay one-third of the contribution and therefore take part in the administration. The clubs differ very much in the number of their members. The largest club is one in Leipsic containing 136,000 members, so that every fourth inhabitant of the city and suburbs belongs to that immense club which includes every trade. Of the other large clubs there is one in Dresden with 90,000 members, one in Berlin with 72,000 members, and one in Frankfort with 68,000 members. There are also a great many clubs each of which has only a very few members. 1244 clubs have less than 50 members each and 2676 clubs have only from 50 to 100 members. With respect to the sick-rate, the statistics are unfortunately incomplete because the clubs only take note of those cases in which the members are unable to work and therefore are supported either by grants of money or by paying hospital fees for them. Members who have only required medical help for slight ailments without ceasing to work are not registered as sick. Of each 100 male members, 37·5 were registered as sick, whereas of each 100 female members only 32·1 were so registered. This difference between the sick-rate of the sexes is declared by the Office to be caused by the greater average age of the male workmen. The duration of the illness was 17·4 days on an average and the mortality, which has considerably decreased of recent years, was 0·8 per cent. In 1903 on an average 3·99 marks were paid for every member for medical treatment, while in 1888 the corresponding amount was only 2·32 marks. The expenses for medical aid, medicine, hospital treatment, maintenance, &c., in 1903 were 180,000,000 marks, being 17·69 marks for every member. The sick clubs form only one part of the provision made for sick workmen; there are also, as has been explained in these columns, other institutions for sick and injured workmen, administered by other bodies and according to other principles though under the same law. It is proposed to amalgamate all the different institutions into great local bodies dealing with the whole insurance business under the workmen's insurance laws. The Minister of the Interior lately stated in Parliament that a Bill to effect that amalgamation would be introduced in about two years.

The Conveyance of Sick and Helpless Passengers on Railways.

Railway travelling in Germany for certain classes of sick and helpless persons has up to the present time been so expensive that only the wealthy could afford it. For the use of such passengers there are provided a number of special carriages which can be engaged on payment of 12 first-class fares. They are, of course, luxuriously furnished and in addition to the compartment for the patient they contain a pharmacy and compartments for a medical man, nurses, and the friends of the patient. Recently the Prussian state railways have adopted a new scheme for the conveyance of invalids at a relatively small cost, so that railway travelling

is now possible for patients of moderate means. The principal feature of the system is that ordinary third-class railway carriages may be adapted for the use of invalids within 15 minutes by removing the partition which separates two compartments and thereby increasing the space available for the patient and his friends. To allow the litter with the patient to be brought into the carriage the latter is provided with folding doors and contains some material for use by the nurse in a special case. There are 60 carriages of this kind which, when not required for their special purpose, run as ordinary carriages for the conveyance of passengers. If a carriage is ordered by the public for the transport of an invalid it is sent to the station indicated, where two compartments are at once adapted for the use of an invalid, whilst the other compartments continue to be used for ordinary passengers. The amount charged is not heavy, being the equivalent of four third-class fares. A good many litters are also kept in the railway stations for the use of the public in the removal of patients from the stations to hospitals or dwelling houses and *vice versâ* at moderate charges. These litters may be placed in any third-class carriage on the condition that two tickets are taken.

May 14th.

ITALY.

(FROM OUR OWN CORRESPONDENT.)

The Close of the Sixth International Congress of Criminal Anthropology.

THE scantiness of the representation of the English-speaking world at this Congress evoked some remark from the delegates of other nationalities, remembering (as not a few of them did) the contributions made by British medical men to criminal anthropology when the subject was still (so to speak) knocking at the door of modern science and pleading for recognition. Certainly, at Professor Lombroso's *séance* at the "Carceri Giudiziarii" of Turin and again at the "Casa Benefica dei Giovani Derelitti," where he illustrated the several criminal types by living "object lessons" drawn from their inmates, it was felt that in some measure he was retraversing ground occupied 60 years ago by Dr. Bruce Thomson of the Perth penitentiary; just as, a little before his most interesting exposition, Signor Enrico Ferri's lecture on "Selvaggi e Delinquenti" (Savages and Delinquents), in which striking analyses were given of "Macbeth as the criminal-né, Hamlet as the mad delinquent, and Othello as the criminal of passion," was found to be little more than a supplement to the late Dr. J. C. Bucknill's studies in the medico-psychology of Shakespeare or to the late Professor Hughes Bennett's physiological commentary on *Macbeth*. Successors of those physicians, Scottish and English, might have been heard with advantage in the discussions that followed these Italian expositions if only to indicate that the British pioneers of criminal anthropology in the nineteenth century were not without adequate successors in the twentieth. At the next triennial Congress of the "youngest of the sciences" it is hoped that the British Isles and colonies as well as the United States of America will be represented in a manner worthy of themselves and of the subject matter. *Au reste*, the accessory features of this last Congress were such as might well have interested the English-speaking participant, from the "Esposizione" of the "armamentarium" and the "bric-à-brac" of criminal anthropology already described,[1] to the "gita di piacere" (pleasure trip) in the Val d'Aosta which formed "the last scene of all." Starting some 200 strong, on a beautiful May morning, by the train leaving Turin at 7.40 the company alighted at such spots of picturesque and historical interest as Ivrea and Hône-Bard, Verrès, and the Castello d'Issogne, at all of which the *ciceroni* of the party gave clear and succinct information as to the *memorabilia* of each. Arrived at Aosta, the "Congressisti" were entertained at a sumptuous banquet in the Hôtel de Ville by the Municipio, after which began the programme of the day, Signor Guglielmo Ferrero, the historian of Rome, leading off with a lucid and lively description in the French language of the objects of interest, the Porta Romana, the triumphal arch in honour of the Emperor Augustus (from whom the town takes its name), the amphitheatre, and other monuments of the past. Visits were also made to the Collegiata di Sant' Orso, to the cathedral, and to various points, at which Signor Casalegno of the local Alpine Club drew attention to those features of the valley and the dominating mountain peaks which endear it to the artist, the nature-student, and the poet. Contemplating the snow-fields, the wooded hillsides verdant from the "eternal April" of the torrent, and the alternation of rugged rocks and green pastures of the chamois, one was haunted by the noble lines of the Cambridge scholar, man of letters, and poet of the "Elegy," Thomas Gray:—

> "Praesentiorem et conspicimus Deum
> Per invias rupes, fera per juga,
> Clivosque praeruptos, sonantes
> Inter aquas, nemorumque noctem."

Tearing themselves away from the scene, the "Congressisti" re-assembled at 6.30 P.M. in the "Politeama Bieler" to find themselves seated at a banquet of 250 "coperti" (covers), the symposium concluding with a toast list which brought the delegates of the various nationalities to their feet in proposing or in replying to the "brindisi" (healths), all of which were honoured in the "bottled sunshine" of the country. The syndic, the Cavaliere Charrez, led off with an eloquent speech, winding up with a call, heartily complied with, to drink the health of Professor Lombroso, who thereupon made a no less eloquent reply. Many other toasts followed, all of them conceived and acknowledged in the spirit of "fratellanza" proper to the republic of science, until at 8 P.M. the company rose to catch the train to Turin, delighted at the genial *finale* to an exceptionally brilliant Congress.

May 7th.

[1] THE LANCET, May 5th, 1906, p. 1285.

EGYPT.

(FROM OUR OWN CORRESPONDENT.)

Public Health Department and Personnel.

THE sanitary department has now changed its name to this new title, chiefly because public health is a better translation of the Arabic and French names constantly in use. Sir Horace H. Pinching, K.C.M.G., and Dr. W. P. G. Graham are at the head of this branch of the Egyptian Government, while three inspectors—Major C. Garner, R.A.M.C., Mr. J. Garner, and Dr. C. Goodman—divide Upper and Lower Egypt between them. Under them there are four junior inspectors—Dr. Granville, Dr. C. C. Forrester, Mr. C. M. Ekins, and Dr. P. G. S. Williams; while at present there are two temporary inspectors added to the number. An extra bacteriological assistant has been granted for work in the Hygienic Institute. Mr. E. H. Ross has succeeded Dr. A. Baker as medical officer of health at Port Said and Dr. W. C. Hayward is temporarily replacing Mr. W. B. Orme at the hospital there. In Alexandria Dr. W. A. Betts has recently been appointed in charge of the native hospital, vice Dr. Schiess Pasha, who has retired on full pay with the rank of consulting medical officer.

Hydrophobia.

Until 1899 all patients bitten by mad or suspected animals were obliged to proceed to Paris or Athens for preventive treatment, but in that year the Italian Benevolent Society established an antirabic institute in Cairo under the direction of Dr. Tonin which has done much valuable philanthropic work for Europeans and natives alike. But the alarming increase of rabid animals has now compelled the Government to take the matter into its own hands and a new institute has been erected near the offices of the Public Health Department. This building will be ready in a few days and to it suspected patients from the Government hospital and elsewhere will now be sent, while the Italian institute will be closed. The number of individuals bitten has steadily gone up from 106 in 1902 to 423 in 1904, and reached 730 in 1905. In the last year 631 were natives, 54 were Greeks, five were British, besides two Maltese, while the rest of the patients were provided by the Italian, French, German, and Austrian colonies. It must here be explained that for some years the Government has caused every bitten person, provided he is willing, to be sent to Cairo for treatment, without waiting for an opinion as whether the biting animal was rabid or not; preventive inoculation is at once begun and is continued for the usual time unless it is definitely established

by experimental inoculation that the animal was not mad. Out of the 730 men, women, and children bitten last year it is believed that the animal was not rabid in 549 of the cases. Ten of the patients died from hydrophobia while the intensive treatment was being carried out and five others died during the fortnight which followed the injection period but only one person died after this date. As is usually the case, 12 of the deaths occurred after severe bites on the face, nearly all caused by wolves, while the remaining four deaths occurred after bites on the uncovered parts of the body, and not one death occurred in those people who were bitten through their clothing. The biting animals during the year consisted of 473 dogs, 16 wolves, 3 jackals, 13 cats, 3 donkeys, 3 horses, 1 mule, 2 camels, 2 monkeys, and 1 hydrophobic human being. The wolf bites are sometimes very severe, especially about the face and head, and on one occasion a patient had to have laparotomy performed because the wounds had penetrated the abdominal wall; one wolf seriously bit 36 persons before it was killed, most of whom were children. The Government has been very tardy in compelling preventive measures in Egypt but now in Cairo and Alexandria there are trained policemen who capture stray dogs and convey them in special carts to a lethal chamber and I am told that 1500 homeless dogs have been killed since December in Cairo alone. It is intended to introduce a similar staff of police into Mansura and Port Said very soon but nothing is as yet done for the smaller towns and villages where pariah dogs are allowed to multiply unchecked. No attempt has ever been made to destroy the wolves which are even more dangerous than dogs and which occasionally attack the women and children outside the villages in the early morning while they are obeying the calls of nature. It should perhaps be explained that the wolf here mentioned, often seen and occasionally hunted by English fox-hunters in the neighbourhood of Cairo, is not the true wolf (*canis lupus*), which is apparently absent from the African continent. It is, however, quite distinct from the jackal (*canis aureus*) and is probably the animal described as the Kaberu or Abyssinian wolf (*canis Simensis*), which takes its Latin name from the district of Simen in Abyssinia where the first specimen brought to Europe was obtained. It is about as large as a big sheep dog, with a long, narrow snout, and its general colour is a pale reddish brown with a tinge of yellow, but when it inhabits the desert near the Pyramids its colour becomes modified to the prevailing sand hue. This animal, like the jackal, never appears to attack man when in health and it may be assumed that almost every "wolf" bite is the result of rabies. On one occasion a wolf actually pursued an Egyptian boy into the kitchen of a large house and bit him there severely. The boy died from hydrophobia though the treatment was begun the day after he was bitten.

Plague.

At the present time there are a few sporadic cases of plague in Deshna, Beni Suef, Minia, Kena, Behara, and Menoufia provinces, while it is reported that the rats are dying in considerable numbers at Port Said, so that a recrudescence of the disease there may occur. The public health inspectors all now believe in the disease being often conveyed by rats and they therefore take every means of destroying them. One of the successful anti-plague measures in Alexandria has been to disinfect thoroughly before the plague season begins those houses where plague has been present on former occasions. During the past year there were only 266 cases of this disease throughout the whole of Egypt, as compared with 855 cases in 1904; the deaths, too, fell from 501 to 181. This is the time of year when a fresh outbreak may at any time be heard of but the chief energies of the public health inspectors are still being concentrated on this one danger so that no great epidemic need be expected.

Cairo, April 26th.

NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

The Life Insurance Scandals and the Medical Fees for Insurance.

THE long-continued agitation in life insurance circles in New York has had, as far as medical examiners are concerned, a wholly unexpected result. The very general newspaper agitation in all parts of the United States resulted in an inquiry held in this city under the Armstrong Act. The committee of investigation, presided over by a well-known member of the legal profession, was assisted by members of his profession, life insurance actuaries, and others. The committee sat for nearly two months and many of the sensational details were published day by day. Finally, the committee drafted a number of laws, some of a remedial and others of a very radical curative character. These, duly submitted to the authorities in Albany, the State capital, where they passed both Houses, were approved by the Governor and will become operative at an early date. The three big companies, no less than the other American companies whose methods have not been impeached, are said to be perfectly solvent and a new era of economy is inaugurated. But the services of medical men are hardly properly recognised. The past and wicked extravagance in the rush for new business is over. Under the new laws the commissions to agents, hitherto anywhere from 60 to 90 per cent. of the first year's premium, will be reduced. In the cost of new business necessarily are included the fees paid to medical examiners. Their fees have been modest and wholly inelastic; the majority of New York companies have paid their examiners a uniform fee of $5, or £1, an examination, irrespectively of any amount under $25,000, or say £5000 sterling. When that sum has been applied for examinations by two examiners were in order, each receiving the $5 fee, plus a fee of $3, or 12*s.*, to one of them for a microscopic examination of the urine. The close and faithful medical examinations of the past, through which a carefully selected line of risks was secured, naturally have resulted in a small mortality. The latter saving has enabled the companies to amass large surplus accumulations, amounting to many tens of millions of dollars. In the reduction of the fees hitherto paid to examiners by the New York companies a hardship will accrue to the medical examiners. They have not been overpaid. Upon a faithful and conscientious discharge of their duties rests the stability of the companies. The work performed by them exacts tact, experience, and special training, to say nothing of endless patience. The fees are to be reduced, such is the current belief—a reduction in fees here in this State, as well as in all parts of the United States, for the companies now under discussion. The changes now impending have produced some apprehension among the life insurance examiners of New York and of other States as well. In some distant States, notably in the South and South-West in part, county medical societies have attempted to stem the rising tide by placing new rules and regulations on their minute books, and under their respective rulings their members are informed what they shall accept as remuneration for medical examinations for life insurance companies. In other words, no member can accept less than the fee fixed by the medical society to which he belongs.

May 5th.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

Bubonic Plague.

BUBONIC plague has broken out once more in Sydney, Brisbane, and West Australia. The disease was first noticed in rats and after an interval affected human beings. The health authorities in New South Wales are of opinion that the outbreak is due to a fresh infection brought by rats from over-sea. The first outbreak in Sydney occurred in 1901 when there were 301 cases and an average mortality of 30 per cent. In 1902 150 cases were reported; in 1903 only two cases; in 1904 12 cases; and in 1905 18 cases. The average mortality of all these was about 25 per cent. The last case of plague in Sydney previously was on July 12th, 1905. In December, 1905, and at intervals since up to the present, plague-infected rats have been caught, chiefly near the wharves; recently they have been found in the city. On March 11th a rat caught in a building in Kent-street was found to be infected and on March 12th a woman working there was attacked with plague. She said that a dead rat had been removed from under the seat in the workroom which she occupied. Since then three more cases have been reported from the same building. Eight cases have occurred at Geraldtown, West Australia, six of which proved fatal. Several rats said to be infected with the

pneumonic form of plague were found in Perth and 25 per cent. of all rats caught were plague infected. The health authorities in all the States are urging more thorough destruction of rats. In Victoria the Board of Health has decided to enforce the regulations for shipping from other ports unless it was known that no infected rats could be found in the other States. The restrictions differ in each State and it is highly desirable that they should be uniform.

Typhoid Fever.

Typhoid fever is very prevalent at Kalgoorlie, West Australia, the local hospital being full of cases. At South Melbourne, Victoria, a case occurred in a dairy. About 40 cases have been reported in the municipality since the beginning of the year and the majority within the last fortnight. The local health officer had his suspicions aroused and made an investigation of the dairies and milk-supply. In 16 cases the milk-supply was from one dairy and there it was found that a child was ill and on investigation the illness proved to be typhoid fever. The authorities promptly stopped the sale of milk and ordered the premises to be made satisfactory. Further inquiry showed that the original source was an outbreak of typhoid fever at the country farm where the milk came from.—The principal medical officer of the Army Medical Corps of New South Wales has reported that the rifle range at Randwich was not in a fit sanitary condition for holding the usual Easter camp as a case of typhoid fever had occurred at a cottage at the entrance to the range three months ago.

Vital Statistics of Melbourne.

The population of Melbourne on Dec. 31st, 1905, was 515,350. The excess of births over deaths was 5351. The deaths from tuberculous diseases for 1905 were less than for any year since 1901, when they numbered 989 and 827 in 1905. The death-rate from typhoid fever was also low—viz., 41.

Waste of Infant Life.

At a deputation to the Queensland Government on the subject of infant life protection Dr. A. Jefferis Turner stated that "in his opinion it would be no exaggeration to say that over 50 per cent. of bottle-fed babies died during the summer months in Brisbane," and Dr. Eleanor Bourne of the Brisbane Children's Hospital said that the majority of babies brought there "suffered from the effects of improper feeding and nothing else." Mr. P. E. Muskett of Sydney some time ago pointed out that in 19 years up to 1902 inclusive there were 345,096 deaths of children under five years of age in Australia and New Zealand; of these, 303,070 were infants and probably 150,000 of these deaths could have been prevented.

The Delivery of Milk and Health.

A dispute between the Milk Carter's and Dairymen's Union and the New South Wales Fresh Food Company was referred to the Arbitration Court and an important decision has been given. The issues covered various conditions of work but one of the most important was a claim for only one delivery of milk on Sundays, Wednesdays, and holidays. On this question the State Children's Relief Department intervened by permission of the court and evidence was given by experts that two deliveries were necessary in the interests of public health. Dr. W. G. Armstrong, the officer of health of the metropolitan district of Sydney, stated that in 1886 the infant mortality of Sydney was 173 per 1000. Last year it was 89 per 1000. The improvement was, he thought, due to the introduction of the Dairy Supervision Act and its more stringent enforcement. Every advance in securing a purer milk-supply had been followed by a fall in infant mortality. It was most important that milk should reach the consumer as quickly as possible. At the Medical Congress in September a proposition was carried unanimously that a bi-daily delivery of milk in Australasian cities should not be interfered with in any way. Dr. R. J. Millard, assistant Government medical officer, corroborated Dr. Armstrong's evidence. He had made observations showing that milk in Sydney became acid in seven hours, soured in 12 hours, and quite curdled in 24 hours. Professor T. P. Anderson Stuart also gave evidence as to the necessity for two deliveries, as did Mr. Hamlet, Government analyst. The court decided that it was impossible to make an order binding people down not to deliver milk more than once a day. The public health was of paramount importance and time for the men must be found in some other way.

Hospital Affairs.

The board of directors of the Royal Prince Alfred Hospital held a special meeting on March 2nd to consider the question of the appointment of women as resident medical officers. Regulations prescribing the duties of such officers, if appointed, were drawn up, by which they were to be exempted from attendance on adult male patients in certain cases. Subsequently the conjoint board, consisting of the directors and the University Senate, met and decided that as Miss Aspinall went into residence with the approval of the hospital authorities she should be appointed for the year, subject to the above regulation as to her duties, but her appointment is not to be taken as a precedent. It was also decided that the whole question of the appointment of women doctors to the hospital should be considered during the present year by the conjoint board. The directors of the hospital have also been considering the whole system for appointing medical officers by the conjoint board and decided to recommend the appointment of a permanent electoral committee representative of both the senate and the directors which would submit recommendations for the approval of the conjoint board.—At the Sydney Hospital Dr. W. O. Maher, Dr. E. J. Jenkins, Dr. D. S. Bowker, and Dr. T. S. Kirkland were re-appointed to their respective positions on the honorary medical staff for a period of four years.—The committee of the Women's Hospital, Melbourne, has decided to establish a pathological laboratory and to appoint a pathologist to make chemical examinations and to attend on operation days or when required by the staff.—At the annual meeting of the King Edward Seamen's Hospital, Sydney, the annual report showed that 73 indoor and 375 outdoor cases had been treated.—The report of the Carrington Centennial Hospital Home for Convalescents read at the annual meeting stated that 1376 patients had been treated, of whom 1241 were restored to health and 40 were much improved. The committee thought that all the large and well-managed hospitals should be under one committee and that some sort of hospital tax should be imposed for their maintenance.

Balmain Friendly Societies' Dispensary.

Another difficulty has arisen between the Balmain Friendly Societies' Dispensary and its medical officers and the latter have resigned in a body. Their resignation has been accepted and three new men have been appointed.

Obituary.

A very old medical identity has been removed from Victoria by the hand of death in the person of Dr. John Blakemore Phipps who had practised for over 40 years at Lancefield but retired some years ago. He was the son of a medical man and graduated at Edinburgh. He served in the Crimean war and at its close went to Victoria and settled at Lancefield. He was a member of the first local council, was a Justice of the Peace, and coroner for the district. He was 79 years of age. One of his daughters married Mr. J. T. Chapman of Yarra Glen.

Syme Research Prize.

The David Syme research prize of £100 and a medal at the Melbourne University has been awarded to Dr. E. H. Embley for a thesis on the Action of Anæsthetic Quantities of Chloroform upon the Blood-vessels of the Bowel and Kidney and a report on the Pharmacology of Ethyl Chloride.

March 22th.

Obituary.

GEORGE APPLETON, M.R.C.S. ENG., L.S.A.

Mr. George Appleton died at his residence, Park Braws, the Lizard, Cornwall, on May 11th, in his eighty-fifth year. The deceased, who received his medical education at Guy's and St. Thomas's Hospitals, took the qualifications of M.R.C.S. Eng. and L.S.A. in 1843 and 1844 respectively. Shortly after qualifying he was appointed surgeon on one of H.M. troopships, in which he went to India. Returning later in ill-health he took up his residence at St. Keverne, Cornwall. He continued there for some time and many years ago commenced practice at the Lizard and continued in active work there until four years ago. Mr. Appleton had many friends and was highly esteemed. He interested himself in all good works for the benefit of the residents of the Lizard and it was mainly through his efforts that the Lizard reading-room was built. He was for many years vice-chairman of the Helston board of guardians. He was a staunch Churchman. Mr. Appleton leaves three sons with whom much sympathy is felt.

Medical News.

UNIVERSITY OF CAMBRIDGE.—At the third examination for medical and surgical degrees, Easter term, the following candidates were successful:—

Part II., Surgery, Midwifery, and Medicine.—J. D. Barris, B.A., Caius; H. J. Clarke, B.A., Trinity; R. P. Cockin, B.A., Caius; R. M. Courtauld, M.A., Pembroke; W. I. Cumberlidge, B.A., Christ's; R. Davies-Colley, B.A., Emmanuel; J. R. Draper, B.A., St. John's; C. F. Fothergill, B.A., Emmanuel; A. Goulston, M.A., and W. R. Grandage, B.A., Clare; M. Grundy, B.A., St. John's; C. R. F. Hall, B.A., Trinity; G. H. Harper-Smith, B.A., Caius; C. King, B.A., Trinity; S. G. MacDonald, B.A., St. John's; J. McIntyre, B.A., King's; J. T. Macnab, B.A., Christ's; E. H. Mayhew, B.A., and A. W. Moore, B.A., Emmanuel; W. L. Murphy, M.A., St. John's; A. S. M. Palmer, B.A., Jesus; W. H. Robinson, B.A., Downing; C. Stanley-Clarke, B.A., and F. J. Thornton, B.A., Caius; J. H. Trench, B.A., Trinity; A. Walker, B.A., Emmanuel; G. L. Webb, B.A., Caius; C. J. Wilson, B.A., Christ's; H. W. Wiltshire, M.A., Clare, and F. Worthington, B.A., St. John's.

—At the Congregation on May 10th the following degrees were conferred:—

M.D.—G. H. Orton, Trinity; and E. A. Ross, Trinity.
M.B. and B.C.—L. G. Davies, Trinity; and E. H. Mayhew, Emmanuel.
M.B.—N. C. Fletcher, Queens'.
B.C.—C. King, Trinity; J. R. Draper, St. John's; and F. Worthington, St. John's.

—Professor G. Sims Woodhead has been appointed a governor of Cheshunt College.—Professor Newton, F.R.S., has been appointed a manager of the Balfour (Animal Morphology) Fund.—Mr. W. M. Mollison, M.A., Clare, has been approved for the M.C. degree.—The scheme for the Quick Professorship of Biology has been approved by the Senate, and Professor Sims Woodhead, Mr. A. Sedgwick, Mr. A. E. Shipley, Dr. Langley, Mr. J. J. Lister, and Mr. F. F. Blackman have been appointed the first managers of the fund and electors to the chair.—The grace for the exemption of students in science (including mathematics) from the obligation to study both classical languages will be voted upon on May 25th and 26th.—It is proposed to appoint Dr. G. H. F. Nuttall, F.R.S., to a newly established Readership in Hygiene in connexion with the Special Board for Medicine.—Mr. W. J. Sell, F.R.S., University lecturer in chemistry, has been approved for the degree of Doctor of Science.—Mr. F. T. Brooks, Emmanuel, has been appointed junior demonstrator of botany.—The University library has received a gift of £5000 from the Worshipful Company of Goldsmiths.—The department of agriculture has received promises of contributions amounting to £9000 towards the cost of erecting new buildings.

ROYAL COLLEGES OF PHYSICIANS AND SURGEONS OF EDINBURGH AND FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.—At the May sittings for diplomas in Public Health held in Glasgow the following candidates passed the respective examinations:—

First Examination.—John Hunter, Musselburgh; Alexander Edington, Edinburgh; Frederick E. Stokes, Crosshill, Glasgow; George Broadfoot Serle, Singapore, Straits Settlements; and Edward Percy Calder, Coldingham, Berwickshire.
Second Examination.—David Robertson Doble, Crieff; Murdoch Macdonald, Shettleston, Glasgow; Alexander Edington, Edinburgh; George Broadfoot Serle, Singapore, Straits Settlements; Frederick Ernest Stokes, Crosshill, Glasgow; William Hamilton Simpson, Scalby, R.S.O., Yorkshire; and John Alexander Kennedy, Bearsden, Glasgow.

FOREIGN UNIVERSITY INTELLIGENCE.—*Amsterdam:* Dr. H. J. Brongersma has been recognised as *privat-docent* of Urology.—*Bologna:* Dr. Silvio Tonnini of Messina has been appointed to the chair of Mental Diseases in succession to Dr. Roncati, resigned.—*Budapest:* Dr. Josef Arkövy has been appointed Extraordinary Professor of Odontology. Dr. Arnold Winternitz has been recognised as *privat-docent* in Surgery.—*Copenhagen:* Dr. Fr. Pontoppidan has been recognised as *privat-docent* of Otology.—*Cracow:* Dr. Emil Godlewski has been promoted to an Extraordinary Professorship of Anatomy and Embryology.—*Halle:* Dr. A. Stieda has been recognised as *privat-docent* of Surgery.—*Marburg:* Dr. Hermann Küttner, Extraordinary Professor of Surgery, has been promoted to an Ordinary Professorship.—*Montreal (McGill University):* Dr. J. W. Stirling has been promoted to the Chair of Ophthalmology in succession to the late Professor Frank Buller.—*Munich:* The rank of Professor has been granted to Dr. F. Bezold, Extraordinary Professor of Otology.—*Naples:* Dr. Filippo Bottazzi has been appointed Extraordinary Professor of Experimental Physiology.—*Philadelphia:* Dr. Edw. Anthony Spitzka has been elected Professor of General Anatomy at Jefferson Medical College.—*Pisa:* Dr. Arbace Pieri has been recognised as *privat-docent* of Psychiatry.—*Rome:* Dr. Amico Bignami has been promoted to the Ordinary Professorship of General Pathology.—*Vienna:* Dr. Alois Kreidl has been granted the rank of Ordinary Professor of Physiology.

PROPOSED PUBLICATIONS ON SMALL-POX BY THE METROPOLITAN ASYLUMS BOARD.—The Metropolitan Asylums Board decided some months ago to publish two works on the subject of small-pox—viz., "The Diagnosis of Small-pox" and "Small-pox and its Relation to Public Health," and made the usual application to the Local Government Board for sanction to the necessary expenditure. At a meeting of the board on May 12th a letter was read from the Local Government Board in reference to the proposal, stating that it had no authority to express an opinion as to the legality of any expenditure in connexion with the publications mentioned, but that it was a question which the auditor must determine in the first instance and that it considered that the best course for the managers to take would be to arrange for the publication of "The Diagnosis of Small-pox" by a publisher at his own risk. It also suggested that the question of publishing a book on "Small-pox and its Relation to Public Health" should stand over until after the book on "The Diagnosis of Small-pox" had been issued. The communication was referred to the hospitals committee for consideration and report.

THE JUBILEE DINNER OF THE INCORPORATED SOCIETY OF MEDICAL OFFICERS OF HEALTH.—The members of the Incorporated Society of Medical Officers of Health dined at the Hotel Cecil on Friday last, May 11th, Sir Shirley F. Murphy, President of the society, presiding. The occasion was the jubilee of the society. An interesting account of the foundation and work of the society had been previously given in an address by Sir Shirley Murphy, which will be found in another column of THE LANCET. Among the visitors present were Sir R. Douglas Powell, President of the Royal College of Physicians of London, Mr. John Tweedy, President of the Royal College of Surgeons of England, Baron Kanehiro Takaki, Mr. Evan Spicer, chairman of the London County Council, Surgeon-General Keogh, Director-General of the Army Medical Service, Sir William H. Broadbent, Sir James Crichton-Browne, Sir Michael Foster, Sir T. Lauder Brunton, Sir John McFadyean, Sir Patrick Manson, Sir Melvill Beachcroft, Sir H. Seymour King, M.P., Dr. F. W. Pavy, Dr. J. F. W. Tatham, and M. Henri Monod. In proposing the toast of "The Houses of Parliament" Mr. Tweedy said that no section of the country had a more intelligent appreciation of the importance of public health than those who represented the working men in the House of Commons. They represented not only labour but the sturdy thought of the working people and they thoroughly recognised the work which had been done by public health officers. Sir Seymour King, in responding, suggested that the President of the Local Government Board should be elected by the Society of Medical Officers of Health, and the proposal has more sound sense in it than perhaps the speaker realised. The toast of "Local Government" was proposed by Sir Michael Foster, who said that the training of medical officers of health was necessarily most complicated. It was long, wide, and varied, and the emoluments should be such as would justify the long training which was necessary. A medical officer of health should have adequate powers given him to carry out the measures which his training suggested as being applicable to particular circumstances. Mr. Evan Spicer, chairman of the London County Council, who responded, spoke of the gratification of the County Council in seeing the presidential chair of the society occupied by Sir Shirley Murphy, whose work in the interests of public health would always be appreciated by the members of the council. Sir James Crichton-Browne, in proposing the toast of "The Society of Medical Officers of Health and their Jubilee," spoke of medical officers of health as thorough-going protectionists who were safeguarding the public weal by prohibiting the importation of disease. During the past half century the society had been identified with every advance in the science of preventive medicine and he trusted that before long it would obtain a Royal Charter and

the patronage of the King. In associating with the toast the name of the President of the society he referred to the public health work during the past 30 years of Sir Shirley Murphy whom he described as first a pioneer, then a leader, and now a generalissimo. Sir Shirley Murphy, in response, said that without the society the medical officer of health would be a less efficient person than he is. Their work was making progress in efficiency and in influence and it behoved them to see that they did not disappoint expectation. It was especially gratifying to find that from all quarters of the world their assistance was sought. Dr. Pavy also responded and said that although 50 years ago they knew nothing of bacteria yet they had vague notions of disease germs; he also referred to the early days of the society, the first meeting in connexion with which was held in his house. "The Visitors" was proposed by Dr. Arthur Newsholme and Baron Takaki, in responding, spoke of the admiration entertained by the Japanese for the British methods of public health administration, though in one respect they were not slavish followers of this country, for they were great believers in the efficacy of vaccination. There were no anti-vaccinationists in Japan. Every child was vaccinated before it was six months old, revaccinated when it entered school at six years, again revaccinated at 14 years when going to the middle school, and the men were re-vaccinated before entering the army, while a further revaccination was enforced if an outbreak of small-pox occurred. Sir R. Douglas Powell also very briefly replied. A band played during dinner and afterwards songs and recitations were given. The company did not separate till a late hour, all present agreeing that the jubilee dinner of the society had been a great success.

ABUSE OF MEDICAL CHARITIES IN NOTTINGHAM.—A large and representative meeting of the profession in Nottingham and the neighbouring district, convened by the Nottingham Medico-Chirurgical Society and the Nottingham division of the Midland branch of the British Medical Association, was held on May 9th, under the presidency of Mr. T. J. Dabell, when the following motion, proposed by Dr. W. Tibbles and seconded by Dr. W. B. Ransom, was brought forward, discussed, and carried unanimously:

That abuse exists and that this meeting invites the governors of the respective charities in Nottingham to consider what steps can be taken to prevent it.

Dr. Tibbles, in proposing the motion, attributed the increasing abuse of hospitals to: (1) indiscriminate distribution of letters of recommendation; (2) the increasing desire for pleasure and luxury amongst the masses, necessitating economies in other directions, such as medical attendance: and (3) the expansion of the hospitals themselves, the increase of their staffs, and the creation of new and additional institutions. The number of patients treated at the various charities in Nottingham had increased from 24,668 in 1885 to 45,147 in 1904, the latter figure being about 20 per cent. of the entire population of Nottingham. Thus at the same rate of increase the numbers would be actually doubled in 22 years, while the increase of population did not exceed 25 per cent. Until some system of inquiry was established neither the governors nor anyone else would have any means of determining the social status and financial position of the vast majority of those who were treated by them. Many striking examples were then given of abuse of the charities and at one institution the poorer patients said that they felt ashamed to sit alongside the very respectable persons who waited their turn for treatment. Others drove up in cabs, which were kept waiting while the patient attended his medical adviser and then returned to his home or employment. In some cases tradespeople gave away to their customers recommendations to the various charities as an inducement to the sale of their goods. Dr. Ransom, in seconding the motion, traced the various steps of a similar movement on the part of the profession in Nottingham eight years ago, which unfortunately achieved nothing. The agitation had then dropped with the understanding that an inquiry officer would be appointed as soon as the out-patient department had been rebuilt and remodelled. This understanding had never been carried out, although the alterations then contemplated had since been completed.—The President pointed out that if the meeting had the result of directing the funds subscribed by the charitable into what were more eligible channels, it would not only safeguard the medical profession but do a service to the cause of charity generally.—Dr. J. A. Waring laid stress on the fact that many persons were ignorant of the fact that hospitals were intended for free treatment and went there fully meaning to pay something.—Dr. W. Hunter, Dr. J. S. Bolton, Mr. G. B. Wray, and Dr. T. W. Kelly also joined in the discussion.—The following motion, which was proposed by the President and seconded by Dr. Lewis W. Marshall, was also carried unanimously:—

That this meeting begs to suggest that some system of inquiry be made into the financial status of *every person* presenting himself or herself for treatment, in order to ascertain if they are suitable recipients of medical charity. The meeting desires also to express the opinion that the present system of recommendations is of doubtful value and should be modified.

This motion was spoken to by Mr. R. C. Chicken, Dr. Ransom, Dr. J. F. Blurton, Dr. Hunter, and Dr. Waring.

MEDICAL MAGISTRATE.—Mr. David Denzil Harris, M.B., C.M. Glasg., has been placed on the commission of the peace for the borough of Carmarthen, Wales.

PRESENTATION TO A MEDICAL PRACTITIONER.—Mr. A. G. B. Lory, L.S.A., on relinquishing his practice at Chudleigh, Devon, was recently presented by the members of the Loyal Chudleigh Lodge of Oddfellows with a Dent's clock as a token of their esteem and respect for his services as their medical officer for a period of more than 11 years. The clock was suitably inscribed.

QUEEN VICTORIA'S JUBILEE INSTITUTE FOR NURSES.—Satisfactory progress, the report of this institute states, has been made during the year 1905. The affiliated associations and the nurses at work continue to increase steadily year by year. Two new county nursing associations, in Herefordshire and Berkshire, have been affiliated and the work in each of the existing affiliated county associations has been extended. The demands on these associations as well as on the institute for trained midwives for country districts have been more numerous owing to the Midwives Act of 1902, which is now come into operation. Throughout the year the council has been endeavouring to provide for the serious deficit in the income of the institute which will take place in 1906. This is due to the exhaustion, save for a small sum, of the capital provided by the Queen's Commemoration Fund of 1897 which was to be expended in promoting the extension of the work. With the disappearance of this fund the council is faced with a deficit of some £2000 a year. Every effort has been made to reduce expenditure, but with the ever-increasing roll of affiliated associations and the consequently growing liabilities in the direction of inspection and training of nurses it is impossible to curtail expenses to any great extent without serious detriment to the efficiency of the work.

SOUTH LONDON DISTRICT NURSING ASSOCIATION.—Princess Louise Duchess of Argyll, the President of the South London District Nursing Association, supported the Lord Mayor at a meeting at the London Mansion House on May 9th in aid of the above association. The committee, in its twenty-second annual report, stated that the number of patients last year was 2176, while the visits paid to the sick poor in their homes numbered 44,222. Of the 2111 cases sent in during the year 1153 were by medical men and 43 by hospitals, 391 by ministers of religion, 486 by patients' friends, and 34 by the Charity Organisation Society. Canon Erskine Clarke (the chairman of the committee) proposed a motion calling upon the charitable public to support the work of the association. The motion was seconded by Mr. T. F. Schwann (the honorary treasurer) and adopted. Sir Joseph Dimsdale proposed a motion approving the principle of nursing the sick poor in their own homes. This was seconded by Sir William H. Bennett, K.C.V.O., and supported by Archdeacon Wilberforce and carried unanimously. A hearty vote of thanks to her Royal Highness for her great practical sympathy with the aims and objects of the association and also to the Lord Mayor terminated the meeting. Tea was subsequently provided by the Lord Mayor in the long parlour.

Parliamentary Intelligence.

HOUSE OF LORDS.

FRIDAY, MAY 11TH.

Poisons and Pharmacy Bill.

In the House of Lords on Friday, May 11th, the report of amendments made by the Standing Committee on the Poisons and Pharmacy Bill was received. Further amendments were now moved.

Clause 4 provided that "No body corporate shall carry on the business of a pharmaceutical chemist or chemist and druggist unless

in every premises where the business is carried on the business is *bonâ-fide* conducted by a manager or assistant being a duly registered pharmaceutical chemist or chemist and druggist, as the case may be, nor unless the name of the person so qualified is conspicuously exhibited in the shop or other place in which he so conducts the business; subject as aforesaid anything which would be an offence under Section 15 or Section 17 of the Pharmacy Act, 1868, if committed by an individual, shall be an offence under those sections if committed by a body corporate: Provided that notwithstanding anything in this section a body corporate may continue to use any description which it was accustomed to use before the 1st day of April, 1906."

Lord ENDLEY moved to leave out all the words after "business" and to insert instead: "and any body corporate carrying on such business and failing to comply with the provision of this section shall be guilty of an offence under Sections 15 and 17 of the Pharmacy Act, 1868, and liable to the penalties therein mentioned." He said that large businesses for retailing drugs had developed very much within the last 30 years, as retail chemists had charged such high prices. The companies had been able to undersell the ordinary retail chemists and to obtain a satisfactory return on capital. The retail chemists and the Pharmaceutical Society had been endeavouring for some years by Bills and by "peaceful persuasion" in the lobby to induce the legislature to put a spoke in their rivals' wheel. Finally, they had had the good fortune so far to enlist the sympathy of the Earl of Crewe as to induce him to insert this clause in this Bill which contained little else of a contentious nature. He thought the adoption of the first seven lines of the clause was expedient in order to settle by statute the position of companies which had hitherto rested on a common-law basis. But the latter part of the clause, by invoking certain sections of the Pharmacy Act of 1868 and by reversing the legal decision in their lordships' House, pronounced in 1890, deprived all corporate bodies of the right of describing themselves as chemists. He claimed the right to the designation for all companies selling drugs through qualified assistants. If the business was conducted in accordance with the first part of this clause a complete guarantee was afforded for the public safety. It was of no consequence whether the owner was an individual, a partnership, or a joint-stock company. The designation of chemist and druggist was necessary to attract the attention and to gain the confidence of customers. The title should not be given to one class more than another, in view of the fact that they all employed adequate skill and knowledge in the conduct of the business. What was proposed was not only protection but protection in an injurious form. The chemist who served a company had passed a qualifying examination just the same as the chemist who traded individually.

The Earl of LICHFIELD, who seconded the amendment, said that in committee the noble Earl in charge of the Bill had altered the clause in such a way that in future it would be impossible for corporate bodies to call themselves by the name of chemists. From time immemorial they had been able to call themselves by this designation. In 1890 the House of Lords decided that it was competent for them to do so. The Pharmaceutical Society claimed that the word chemist should be a personal one and should only apply to those who had passed the necessary examination. But under the Act of 1868 every company was obliged to keep a qualified manager in every shop it owned and therefore the safety of the public was as well preserved in the case of companies as in the case of individuals. Great sums of money had been invested in the business on the strength of the existing law and he wanted to know what harm the companies had done in the exercise of their rights. The clause would vexatiously affect trade and it was not in the public interest that a privileged class should be established and companies debarred from using the name chemist.

The Earl of CREWE said he gathered from the speech of the noble lord and the amendment that this was a matter that had been in dispute for many years between the Pharmaceutical Society and the companies and it might really be described as a storm in a teacup, though those interested in the question considered it a matter of primary importance. The Act dealing with chemists and druggists was that of 1868 and it made it unlawful for any person to use the words "chemist and druggist" unless he was a person qualified by examination. Since that time no alteration of practice had been made in the law, but companies had sprung into existence, many of them very large concerns, and no doubt they had been of distinct service to the public by creating a healthy competition, for they had to a great extent lowered the price of drugs. The chemists said the Act of 1868 conferred upon them a distinct assurance of title; they regarded the title as absolutely applying to the individual and contended that it should not be used by a company which had not passed any examination. On the other hand, the companies pointed to their excellent public record and the fact that they employed a qualified chemist in each shop and therefore the public had no further interest in the use of the term; in fact, it was a sort of domestic matter between rivals in trade. The simple issue was this, was a chemist an ordinary tradesman, like a butcher or baker, or was he in the position of a man who had taken a degree, and therefore alone entitled to the use of the title? That really was the whole point at issue. He admitted there was a great deal to be said on both sides, but on the whole he had arrived at the definite conclusion that these titles, under the Act of 1868, were personal, that to some extent they were in the nature of a degree or qualification and ought not therefore to be attached to any name except that of the man who had actually earned them. If that were so it destroyed the two principal arguments of noble lords opposite, because if a title was a personal matter no one else was entitled to the use of it. People took a distinct pride in the possession of these titles of pharmaceutical chemists and naturally did not like to see persons who had not been through the mill as they had using these distinctions when they had not earned them. They were told that an enormous injury would be inflicted upon these large companies if they were not allowed the use of the title of chemist, a title by which the public were attracted rather than by the title of "druggist" or "dealer in medicine." For his part he did not consider that that was a point of difficulty, as he believed that the public were guided more by the particular kind of shop and were drawn to the shop at which they had been in the habit of dealing. With regard to companies he believed that the public were attracted more by the appearance of the place, by the obvious business-like manner in which the shop was carried on, as was the case in many of these companies, rather than by the name over it, and therefore would prefer to go to one of these brilliant stores where they might be sure of getting the proper thing than going to some frowsy-looking shop with the word "chemist" over the door. He therefore thought that the injury these companies said they would receive by the loss of these titles was enormously exaggerated. On the other hand, no doubt they would suffer in a different way. No doubt in many cases, and one case in particular, they had adopted the title of "chemist" on the shop-front and if this Bill passed as it stood those shop-fronts would have to be abandoned and a very considerable number of labels would have to be sacrificed. This fact, of course, gave them a claim to a considerable time limit in which to minimise the injury. Consequently he should be prepared to propose a time limit of seven years which he thought would be sufficient to meet the case.

Viscount ST. ALDWYN said that undoubtedly the injury inflicted upon these companies would be very great if the Bill were passed as it stood. He had been informed that there was one company in existence which had as many as 320 shops throughout the country at which 4000 qualified assistants were employed and the capital embarked amounted to £1,300,000. The expenditure of this company upon shop-fronts and other things on which the word "chemist" appeared had been considerable and by the passing of this Bill this company would lose between £30,000 and £40,000. That, he submitted, was a fine of a very large amount to impose upon a body that was doing no more than an admirable work for the benefit of the public at large. He was quite sure their lordships would not desire to do anything that would be unfair to existing companies and fine them so heavily as he had described. The amendment before them, however, raised a larger and wider issue, it raised the whole question of not only whether existing companies should be allowed to maintain their position, but whether future companies should be allowed to enter into competition with them. The noble earl had referred to past history. The Act of 1868, which he believed was a Government statute, in this matter certainly forbade, in accordance with previous legislation, the use of the title "chemist and druggist" to anyone not qualified by passing an examination. But the Act also forbade any person not so qualified from even opening a shop. Now, however, the noble earl did not intend to prevent these companies from keeping open shop in the future; that was not a provision that would commend itself to this House or the Government, but what the noble earl allowed was the keeping open shop, forbidding them to use the title "chemist and druggist" after a certain number of years. What the noble earl proposed was that a person carrying on the business should not be allowed to call himself by the proper title applicable to the business. An individual might have 30 shops with an assistant and he could continue the business.

The Earl of CREWE: Provided the assistant was a qualified man.

Viscount ST. ALDWYN said he was advised that the noble earl's proposal would only apply to companies and not to individuals. But what was the history of this matter? He knew a good deal about it, because when he was a member of the other House he was approached by certain of his constituents to forbid the competition of companies in the sale of drugs. He replied that that was a monstrous proposal and he was then asked if he would compel every director of a company to be a qualified pharmaceutical chemist. He admitted that was less objectionable. The fact was that the Pharmaceutical Society had been desirous throughout to secure a trade monopoly for their own benefit and to the public injury by the keeping up of prices. Was it possible that a free trader like the noble Earl would attempt to establish a monopoly in order to further the protectionist desires of the Pharmaceutical Society?

Lord STANLEY of ALDERLY said it seemed to him that the name "chemist" was like that of an old-established firm, a trade name, and therefore he could not see why they should seek to take it away from a company which employed qualified men to carry on the business.

The Marquis of RIPON said it appeared to him to be a misuse of terms to allow companies composed of large bodies of shareholders to use the words "chemist and druggist." The loss that would be occasioned would no doubt be very large, but he thought it was greatly exaggerated, as those who were concerned in matters of this kind always estimated their losses very highly. His noble friend recognised that there would be a loss and he gave them seven years in which to recoup themselves so far as possible. In his opinion it was far better that a name in which the public had confidence should be confined to those persons who had undergone a proper examination.

Lord BELPER said he would ask whether it was the case that the title of pharmaceutical chemist was really kept up as a personal one. In this Bill it was laid down that the executor of the estate of a deceased chemist could continue the business as long as it was conducted by a registered pharmaceutical chemist or chemist and druggist. The executor did not require to be a chemist itself. Yet the clause would prevent a company employing such a chemist from describing itself as chemist. As far as he could understand the companies had carried on their business exceptionally well, so much so that the public had come to look on them as a necessity. A very large number of petitions had been signed by the customers of those companies who were perfectly satisfied and wished the business to be carried on in the same way as hitherto. Why should not an association of individuals be allowed to carry on a business in the same way as a pharmaceutical chemist who did not himself attend to his business so long as the public were assured that the business was properly conducted?

The Earl of CREWE said that he did not mean to provide by the Bill that executors should be allowed to carry on under a particular name with the word chemist attached unless that chemist still existed. He would be glad to add words to the Bill to prevent that.

Their lordships divided.

For the amendment	38
Against	32
Majority for	6

The amendment was accordingly carried.

Lord LAWRENCE moved to leave out Clause 7 which provided that the Bill should not apply to Ireland and to insert the following clause:—

7. This Act, except Sections 3 and 4 thereof, shall apply to Ireland subject to the following modifications:—

(*a*) For references to the Pharmacy Acts, 1852 and 1868, or either of them, there shall be substituted references to the Poisons (Ireland) Act, 1870, the Pharmacy Act (Ireland), 1875, and the

Pharmacy Act (Ireland), 1875, Amendment Act, 1890, and for references to particular provisions of the first-mentioned Acts shall be substituted references to the corresponding provisions of the last-mentioned Acts, and in particular for the reference to Schedule A. to the Pharmacy Act, 1868, shall be substituted a reference to Schedule A. to the Poisons (Ireland) Act, 1870, and for the reference to Section 2 of the Pharmacy Act, 1852, shall be substituted a reference to Section 16 of the Pharmacy Act (Ireland), 1875:

(*b*) For the reference to the Council of the Pharmaceutical Society there shall be substituted a reference to the Council of the Pharmaceutical Society of Ireland:

(*c*) For references to Orders in Council by His Majesty there shall be substituted references to Orders in Council by the Lord Lieutenant:

(*d*) Section 17 of the Pharmacy Act (Ireland), 1875, Amendment Act, 1890, shall apply where the persons keeping open shop are a company.

He said that Irish agriculturists had not the same facilities as those in England for purchasing poisons required in their industry. Irish agricultural societies were unanimously in favour of the clause he proposed and the only opponent was the Pharmaceutical Society of Ireland. That society had a monopoly and it was not in the public interest that that monopoly should be continued.

The Earl of DONOUGHMORE said that when the Bill was before the House on a previous occasion an amendment of his excluding Ireland was carried. The Bill was founded on a report of a Departmental Committee appointed by the late Government. Ireland was in no way referred to that Committee and no evidence was taken as to the condition of affairs in Ireland. He believed that this was a case in which Ireland was very much better governed than England. Under the Act of 1868 no one could sell poisons of any kind unless he was a registered chemist. This was inconvenient in regard to poisons for agricultural purposes. This evil was recognised in Ireland 15 years ago and the Act of 1890 was passed by which the Pharmaceutical Society was given power to license druggists to sell poisons for agricultural purposes only but without liberty to make up poisons for medicinal purposes. There were 1557 persons in Ireland licensed in this way and they were to be found in nearly every town and village of any importance. He had seen a list of 130 places which were supposed to need further accommodation but it had been carelessly drawn up and was inaccurate. He knew several places which were on the list and which in reality had persons licensed to sell poisons. The Irish Cattle Traders' Association had circulated papers among their lordships in which it said that the dangers of sheep scab would be augmented if the Bill passed as now drafted. It was, however, quite obvious that the Bill would not cause the slightest diminution in the number of persons qualified to sell poisons in Ireland. The law would remain as it now was. The 1500 licensed people all appeared to be genuine chemists and they perfectly met the convenience of the public. It would be very unwise to have a system under which some druggists would be licensed by the Pharmaceutical Society and some by the county councils. A conflict of authority would arise and it would be difficult to prevent the power to sell falling into the hands of unqualified persons.

The Earl of MAYO supported the amendment. Ireland, he said, was a purely agricultural country and if it wanted one thing more than another it was facilities for getting poisonous sheep-dips and other poisonous compounds. Surely the views of societies like the Irish Cattle Traders' and Stockowners' Association should be entitled to some weight. The departmental committee, to which reference had been made, had stated that in modern times these sheep-dips, usually containing strong poisons, had come into universal use and were indispensable to sheep farmers. Unluckily sheep scab was very common in Ireland and in some districts it was almost impossible to get these dips. It was all very well to say that there were 1500 people who sold them, but what was that in a population of 4,000,000? It was absolutely necessary that the Bill should apply to Ireland.

The Earl of CREWE said that he had discussed the subject with many gentlemen since the last occasion when the Bill was before the House and he had gathered that the Irish were of opinion that Ireland should be included in the Bill. He confessed that he had not contemplated that this matter would come up again but he had not the least doubt that the clause would have been re-introduced in the House of Commons. In the circumstances he did not feel called upon to oppose the amendment.

The Marquis of LONDONDERRY thought that the Earl of Crewe had shown a remarkable change of front. He still thought that it would be unwise to include Ireland but he would advise the Earl of Donoughmore not to press his opposition.

The amendment was agreed to and this closed the discussion on the Bill.

HOUSE OF COMMONS.

WEDNESDAY, MAY 9TH.

Infant Mortality: A Conference.

Mr. ALDEN asked the First Lord of the Treasury whether, in view of the fact that the report of the Registrar-General indicated a serious condition of things as regards infant mortality in certain large industrial towns and areas, he would consider the advisability of appointing a departmental committee to investigate the causes of such mortality, with power to call for special reports from, or institute inquiry into, the towns and areas concerned.—Sir HENRY CAMPBELL-BANNERMAN replied: I am fully alive to the importance of this question, and as my honourable friend will see from an answer which I gave yesterday, the Local Government Board is taking active steps to ascertain the causes of excessive infant mortality with a view to the adoption of remedial measures. I may mention that a conference which will be attended by a large number of representatives of municipalities is shortly to be held to consider the whole question, and I understand that it is to be presided over by my right honourable friend the President of the Local Government Board. I do not think that, in these circumstances, it is necessary to appoint a departmental committee.

The National Physical Laboratory.

Mr. WILLIAM PEARCE asked the Secretary to the Treasury whether commercial tests, chemical or physical, were being undertaken at the National Physical Laboratory or were included in the circular of charges of the laboratory; and, if so, whether such competition with private practitioners would be stopped, as being contrary to the recommendations of the Treasury Committee in 1898 and to the declared objects of the laboratory.—Mr. M'KENNA answered: Except for Government work and for some few special cases which come individually before the committee chemical analyses are only undertaken by the National Physical Laboratory when required to elucidate some physical or mechanical question under investigation. The average number of chemical tests of all kinds during the past three years has been 39. The number of physical tests made and of instruments tested has averaged nearly 30,000. Physical tests, including tests on instruments, are undertaken in accordance with the recommendation of the Treasury Committee of 1898, establishing the laboratory as a public institution "for standardising and verifying instruments, for testing materials, and for the determination of physical constants." The members of the Treasury Committee with one exception became original members of the Executive Committee, and they have been careful to keep their work within the terms of the report. The committee is fully prepared to consider any complaints which may be made as to the nature of the testing work done and its rates of charges.

THURSDAY, MAY 10TH.

Aliens and Infectious Disease.

Mr. CLAUDE HAY asked the Secretary of State for the Home Department how many aliens suffering from infectious disease were last year treated at the port sanitary hospital at Denton, Gravesend, and what expenditure was incurred in their treatment. Mr. Hay also asked the Secretary of State for the Home Department whether aliens who had been treated for infectious disease at the port sanitary hospital at Denton, Gravesend, were, when discharged as convalescent, examined by an immigration officer as alien steerage passengers coming within the scope of the Aliens Act or were discharged from the hospital without such examination.—Mr. GLADSTONE said: Perhaps I may answer these two questions together. I am informed by the town clerk of the City that the number of aliens suffering from infectious diseases who were treated at the port sanitary hospital at Denton near Gravesend during the year 1905 was 36 and the proportion of expenditure incurred in the treatment and maintenance of such aliens was £485. This expenditure is borne entirely by the Corporation of London out of its corporate funds and not by the rates. No charge is made either to shipowners or patients. Any such alien who was liable on his arrival in this country to inspection under the Aliens Act has, by virtue of Rule 9 made thereunder, to be inspected before release from hospital.

An Irish Contract for Medicine.

Mr. POWER asked the Chief Secretary to the Lord Lieutenant of Ireland for what reason the Local Government Board of Ireland refused to sanction the action of the Kilmacthomas board of guardians in giving the contract for the supply of medicine to the union to Messrs. Boileau and Boyd of Dublin, a well-known firm; whether he was aware that Messrs. Boileau and Boyd's tender was only 1¼ per cent. higher than the tender of Messrs. Sumner of Liverpool; and that the Local Government Board sanctioned the action of the Dungarvan board of guardians, who gave the contract for the supply of medicines to Messrs. Boileau and Boyd, though in the case of Dungarvan the tender of Messrs. Boileau and Boyd was 1¼ per cent. higher than the tender of Messrs. Sumner.—Mr. BRYCE replied: The board of guardians of Kilmacthomas union advanced no reason for its proposal to accept the higher tender and upon its attention being called by the Local Government Board to its regulation on the subject the guardians decided to accept the lower tender. The Dungarvan board of guardians advanced good reasons for not accepting the lower tender and the Local Government Board accordingly assented to its application that it might accept the higher tender.

FRIDAY, MAY 11TH.

Reform of the Royal College of Surgeons of England.

Sir WILLIAM COLLINS asked the First Lord of the Treasury whether he would be prepared to consider a petition having for its object a reform of the Royal College of Surgeons of England with a view to giving some voice in the management of the College and its property to the Members of the College.—Sir HENRY CAMPBELL-BANNERMAN replied: I shall be glad to consider any petition which my honourable friend may send me. But, as he is no doubt aware, any change in the constitution of the Royal College of Surgeons of England can only be carried out by legislation unless such change has the support of the governing body of the College.

MONDAY, MAY 14TH.

Vaccination in the Army.

Mr. LUPTON asked the Secretary of State for War whether the average annual strength of the British armies in Egypt and India during the 20 years 1881 to 1900 was approximately 69,751, and the total number of cases of small-pox amongst those men 1149, and the total number of deaths from small-pox 113; and whether seeing that during the same period the town of Leicester had an average annual population of 168,415, and that the total number of cases of small-pox in Leicester during that period was 447, and the total number of deaths from small-pox was 31, that the soldiers were all vaccinated and the population of Leicester largely unvaccinated, and that the death-rate from small-pox in the army per 100,000 was eight times the death-rate in Leicester, he would consider the advisability of relaxing the regulation for compulsory vaccination in the army.—Mr. HALDANE answered: It is not clear what value can be obtained from a comparison between the statistics of Leicester and those of the British army in India and Egypt, but if my honourable friend will consider the statistics for the years 1901 to 1904 he will find that while the troops in India and Egypt had 163 admissions to hospital for small-pox and 21 deaths, Leicester had 740 admissions to hospital for small-pox and 30 deaths. There would not appear to be any sound grounds for relaxing the regulations for vaccination in the army.

Sleeping Sickness.

Mr. REES asked the Under Secretary of State for the Colonies whether he was aware that the sleeping sickness was now reported to have reached Lake Mweru, in Northern Rhodesia; and whether, in

view of this fact and of the facts that the mail carriers between Chiromo and Blantyre had been held up by lions and that the construction of the Government ox-cart road from Katungas to Chiromo was abandoned on account of the presence of the tsetse fly, he would consider the advisability of calling, by telegraph, upon the Commissioner to report regarding the effect of the game preserve alongside the last-named township and to consider whether it could not be removed to some more suitable location.—Mr CHURCHILL replied: I have heard of some of the reports to which my hon. friend refers; but I cannot tell from any information in the Colonial Office whether they may not have been exaggerated. That any connexion exists between the appearances of lions, of the tsetse fly, and the sleeping sickness on the one hand and the maintenance of the game reserve on the other, is not at present established. But the Secretary of State is addressing the Commissioner upon the subject; and if it can be shown that the removal or contraction of the reserve would increase the health and security of Chiromo and its environs instructions will be given accordingly.

TUESDAY, MAY 15TH.

Royal Commission on Experiments on Animals.

Sir PHILIP MAGNUS asked the Secretary of State for the Home Department whether he was prepared to make any statement as to the appointment of a Royal Commission to consider the working of the Act under which experiments on animals were permitted for the purposes of medical research.—Mr. GLADSTONE answered: Yes, sir; in view of the fact that no inquiry into the subject has been held for 30 years it is the intention of the Government to recommend the appointment of a Royal Commission to examine the working of the Cruelty to Animals Act in the light of present scientific knowledge.

BOOKS, ETC., RECEIVED.

"AMERICA ABROAD," Offices of, 8 and 9, Essex-street, Strand, London, W.C.

America Abroad. The Annual Handbook for American Travellers. Edited by J. W. Cundall. 1906. Sixteenth Year of Publication. Price 6d.

AMERICAN MEDICAL ASSOCIATION PRESS, 103, Dearborn-avenue, Chicago.

Infection, Immunity, and Serum Therapy, in Relation to the Infectious Diseases which Attack Man; with Considerations of the Allied Subjects of Agglutination, Precipitation, Hemolysis, &c. By H. T. Ricketts, M.D., Instructor in Pathology, University of Chicago. Price not stated.

BAILLIÈRE, J. B., ET FILS, 19, Rue Hautefeuille, Paris.

Traité d'Hygiène. Publié en Fascicules sous la Direction de MM. P. Brouardel et E. Mosny. X. Hygiène Navale. Par Dr. A. Duchatenu, Directeur du Service de Santé de la Marine à Lorient, Dr. Jan, Médecin en chef de la Marine, et Dr. Pianté, Médecin de la Marine. Price Fr. 7·50.

Nouveau Traité de Médecine et de Thérapeutique. Publié en Fascicules sous la Direction de MM. P. Brouardel et A. Gilbert. X. Streptococcie, Staphylococcie, Pneumococcie, Colibacillose. Par F. Widal, J. Courmont, L. Landouzy, et A. Gilbert. Price Fr. 3.50.

BAILLIÈRE, TINDALL, AND COX, 8, Henrietta-street, Covent Garden, London, W.C.

The Philosophy of Voice, showing the Right and Wrong Action of Voice in Speech and Song. With Laws for Self-Culture. By Charles Lunn. Tenth (standard) edition. Price 6s. net.

Supplementary Essays on the Cause and Prevention of Dental Caries. By J. Sim Wallace, M.D., D.Sc., L.D.S., Hon. Dental Surgeon, West-End Hospital for Nervous Diseases. Price 2s. 6d. net.

Gastric Surgery. Being the Hunterian Lectures delivered before the Royal College of Surgeons of England on Feb. 19th, 21st, and 23rd, 1906. By Herbert J. Paterson, M.A., M.B., B.C. Cantab., F.R.C.S. Eng. Price 5s.

The Nature and Treatment of Cancer. (Some Methods of Hypodermic Medication in the Treatment of Inoperable Cancer.) By John A. Shaw-Mackenzie, M.D. Lond. Third edition, revised and enlarged. Price 2s. 6d. net.

A Manual of Diseases of the Eye. By Charles H. May, M.D. New York Chief of the Eye Clinic, Columbia University, New York, 1890–1903, Ophthalmic Surgeon to the City Hospitals, the French Hospital, the Red Cross Hospital, and the Mount Sinai Hospital, New York, and Claud Worth, F.R.C.S. Eng., Ophthalmic Surgeon to the West Ham and East London Hospital, Assistant Surgeon to the Royal London Ophthalmic Hospital, Moorfields. Price 10s. 6d. net.

BERGMANN, J. F., Wiesbaden. (F. BAUERMEISTER, 49, Gordon-street, Glasgow.)

Immunität und Disposition und ihre experimentellen Grundlagen. Von Dr. Martin Jacoby, Privatdozent an der Universität Heidelberg. Price M. 4.60, or 4s. 8d.

Atmokausis und Zestokausis. Die Behandlung mit hochgespanntem Wasserdampf in der Gynaekologie. Von Dr. Ludwig Pincus, Frauenarzt in Danzig. Zweite verbesserte Auflage. Price M. 6, or 6s.

BEVAN, WILLIAM, 54 and 54A, Lothian-street, Edinburgh. (SIMPKIN, MARSHALL, AND CO., LIMITED, Edinburgh.)

Students' Manual of Medical Jurisprudence and Public Health. By G. Haxton Giffen, L.R.C.P. & S.E., F.R.C.S.I., D.P.H. Camb., Senior Demonstrator in Anatomy, Minto House, Bathgate Gold Medallist in Materia Medica, Royal College of Surgeons, Edinburgh. Second edition, revised and enlarged. Price 5s. net.

CHURCHILL, J. AND A., 7, Great Marlborough-street, London, W.

Uric Acid: an Epitome of the Subject. By Alexander Haig, M.A. M.D. Oxon., F.R.C.P., Physician to the Metropolitan Hospital and the Royal Hospital for Children and Women. Second edition. Price 2s. 6d. net.

CLARENDON PRESS, Oxford.

Lectures on the Method of Science. Edited by T. B. Strong, Dean of Christ Church. Price 7s. 6d. net.

COLUMBIA UNIVERSITY PRESS, New York. (THE MACMILLAN COMPANY, Agents. MACMILLAN AND CO., LIMITED, London).

Columbia University Biological Series. VIII. The Dynamics of Living Matter. By Jacques Loeb, Professor of Physiology in the University of California. Price 12s. 6d. net.

HOLT, HENRY, AND CO., New York. (GEORGE BELL AND SONS, Portugal-street, Lincoln's Inn, London.)

Nature and Health: a Popular Treatise on the Hygiene of the Person and the Home. By Edward Curtis, A.M., M.D., Emeritus Professor of Materia Medica and Therapeutics, Columbia University, New York. Price not stated.

J. B. LIPPINCOTT COMPANY, 5, Henrietta-street, Covent Garden, London, W.C.

International Clinics. Edited by A. O. J. Kelly, A.M., M.D., Philadelphia, U.S.A., with collaboration. Vol. I. Sixteenth series, 1906. (Sold in complete sets of four volumes, price £1 15s. net.)

JUTA, J. C., AND CO., Adderley-street, Cape Town.

From Farm to Forum, or Young Africa. By Arnold H. Watkins. Price 5s.

LEHMANN, J. F., München.

Lehmann's Medizinische Handatlanten. Band VIII. Atlas und Grundriss der traumatischen Frakturen und Luxationen. Von Prof. Dr. H. Helferich, in Kiel. Siebente verbesserte und vermehrte Auflage. Price M. 12.

Lehmann's Medizinische Handatlanten. Band XVIII. Atlas der äusserlich sichtbaren Erkrankungen des Auges nebst Grundriss ihrer Pathologie und Therapie. Von Prof. Dr. O. Haab in Zürich. Dritte stark vermehrte Auflage. Price M. 10.

Die Schmerzverhütung in der Chirurgie. Von O. Witzel, Professor in Bonn, F. Wenzel, Oberarzt in Bonn, und P. Hackenbruch, dirigierendem Arzt in Wiesbaden. Price M. 3.

Das Heufieber, sein Wesen und seine Behandlung. Von Dr. Alfred Wolff-Eisner. Price M. 3.60.

Fortschritte in der Anwendung der Röntgenstrahlen. Von Dipl.-Ing. Dr. phil. Josef Rosenthal, München. Price M. 1.20.

Die interne und chirurgische Behandlung der Gallensteinkrankheit. Vortrag auszugsweise gehalten zu Berlin am 20. April, 1906, im Kaiserin-Friedrich-Haus für das ärztliche Fortbildungswesen in Preussen. Von Prof. Dr. Hans Kehr, Geh. Sanitätsrat. Price M. 4.

LONGMANS, GREEN, AND CO., 39, Paternoster row, London, E.C.

The Diseases of the Nose and its Accessory Sinuses. By H. Lambert Lack, M.D. Lond., F.R.C.S., Surgeon to the Throat Department of the London Hospital and Lecturer on Diseases of the Throat to its Medical College (University of London), Surgeon to the Throat Hospital, Golden-square. Price 25s.

MACMILLAN AND CO., LIMITED, London.

Appendicitis, its Pathology and Surgery. By Charles Barrett Lockwood, F.R.C.S., Surgeon to St. Bartholomew's Hospital, &c. Second edition. Price 10s. net.

ROUTLEDGE, GEORGE, AND SONS, LIMITED, Broadway House, Ludgate-hill, London, E.C.

The Management of Children. A Book for Mothers and Nurses. By Howard Barrett, M.R.C.S. Eng., Fellow of the Royal Medical and Chirurgical Society, Fellow of the Medical Society of London, late Surgeon to the Poplar Hospital. Price 5s. net.

W. B. SAUNDERS COMPANY, Philadelphia and London.

Saunders' Question-Compends. No. 13. Essentials of Genito-Urinary and Venereal Diseases. Arranged in the Form of Questions and Answers. Prepared especially for Students of Medicine. By Starling S. Wilcox, M.D., Professor of Genito-Urinary Diseases and Syphilology, Starling Medical College, Columbus, Ohio. Price 4s. net.

Nursing in the Acute Infectious Fevers. By George P. Paul, M.D., Assistant Visiting Physician and Adjunct Radiographer to the Samaritan Hospital at Troy, New York. Price 4s. net.

URBAN UND SCHWARZENBERG, Berlin und Wien.

Lehrbuch der Physiologischen Chemie. In Dreissig Vorlesungen. Von Emil Abderhalden, Privatdozent für Physiologie an der Universität Berlin. Price M. 18.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

ALLEN, R. W., M.B., B.S., has been appointed Pathologist to the Royal Eye Hospital, Southwark, S.E.

ARMOUR, DONALD, M.B. Toronto, M.R.C.P. Lond., F.R.C.S. Eng., has been appointed Assistant Surgeon to the National Hospital for the Paralysed and Epileptic.

BARNARD, ANNIE T., M.B., B.S. Lond., has been appointed Refractionist to the Royal Eye Hospital, Southwark, S.E.

BLAKENEY, JOHN HENRY, L.R.C.P. Lond., M.R.C.S., has been appointed Public Vaccinator for the No. 1 District by the Cheltenham Board of Guardians.

DONALD, DAVID, L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Honorary Medical Officer to the Aldershot Hospital.

FENTON, W. J., M.B. Camb., M.R.C.P. Lond., has been appointed Assistant Physician to Charing Cross Hospital.

GILES, A. E., F.R.C.S. Edin., M.D. Vict., has been appointed Surgeon to In-patients at the Chelsea Hospital for Women.

HARRIS, JOHN HENRY, M.D. Durh., M.R.C.S., L.S.A., D.P.H. Camb., has been re-appointed Medical Officer of Health to the Dartmouth and Totnes Port Sanitary Authority.

MCHOUL, JAMES, M.B., Ch.B. Glasg., has been appointed House Surgeon at the Royal Eye Hospital, Southwark, S.E.

RHYS, OWEN LEWELLIN, M.B., Ch.B.Edin., has been appointed Clinical Assistant to the Electrical Department at Cardiff Infirmary.

ROE, WILLIAM FRANCIS, L.R.C.P. & S. Irel., has been appointed Clinical Assistant to the Royal Hospital for Diseases of the Chest, City-road.

STEWART, PURVES, M.D., F.R.C.P. Lond., has been appointed Physician to the Italian Hospital, London, W.C.

TREVES, Sir FREDERICK, Bart., G.C.V.O., C.B., LL.D., has been appointed Honorary Consulting Surgeon to the Italian Hospital, London, W.C.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BIRKENHEAD BOROUGH HOSPITAL.—Junior Resident House Surgeon. Salary £80, with fees.

CANCER HOSPITAL, Fulham-road, London, S.W.—Surgical Registrar. Honorarium £26 5s. per annum.

CENTRAL LONDON OPHTHALMIC HOSPITAL, Gray's Inn-road, W.C.—House Surgeon. Salary at rate of £50 per annum, with board and residence. Also Pathologist.

CHARING CROSS HOSPITAL.—Assistant Physician.

CHELSEA HOSPITAL FOR WOMEN, Fulham-road, London, S.W.—Surgeon.

CORNWALL COUNTY ASYLUM, Bodmin.—Third Assistant Medical Officer, unmarried. Salary £135, rising to £155 per annum, with board, apartments, washing, &c.

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN, Shadwell, E.—Dental Surgeon.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark.—House Physician and House Surgeon. Salary £80 respectively, with board, residence, and washing. Also Assistant House Surgeon. Salary £70, with board, residence, and washing.

EXETER, ROYAL DEVON AND EXETER HOSPITAL.—Assistant House Surgeon, unmarried. Salary £60 per annum, with board, lodging, and washing.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway, N.—Surgeon to the Throat and Ear Department.

HOSPITAL FOR WOMEN, Soho square, W.—Surgeon Dentist.

HUDDERSFIELD INFIRMARY.—Senior House Surgeon. Salary £80 per annum, with board, residence, and washing.

HULL, ROYAL INFIRMARY.—House Physician, unmarried. Salary £100 per annum, with board and apartments. Also Casualty House Surgeon. Salary £50 per annum, with board and lodging.

LIVERPOOL, WORKHOUSE AND HOSPITAL, Rice-lane, Walton.—Assistant Resident Medical Officer, unmarried. Salary £125 per annum, with board.

LONDON COUNTY ASYLUM, Horton, Epsom, Surrey.—Junior Assistant Medical Officer. Salary £150 per annum, with board, apartments, and washing.

LONDON HOSPITAL, Whitechapel, E.—Surgical Registrar.

NORTH-EASTERN HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—House Surgeon for six months. Salary at rate of £60 per annum, with board, residence, and laundry.

NORTH-WEST LONDON HOSPITAL, Kentish Town-road.—Resident Medical Officer and Assistant Resident Medical Officer for six months. Salary at rate of £50 per annum, with board, residence, and washing.

PARISH OF PADDINGTON.—District Medical Officer. Salary £100 per annum.

PERTH DISTRICT ASYLUM, Murthly.—Assistant Physician. Salary £120, with board and residence.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—Hunterian Professors, Erasmus Wilson Lecturer, and Arris and Gale Lecturer.

ROYAL WESTMINSTER OPHTHALMIC HOSPITAL, West Strand, W.C.—Clinical Assistants. Also House Surgeon for six months. Honorarium £25.

ST. GILES, CAMBERWELL, WORKHOUSE, East Dulwich.—Locum Tenens for four weeks. Remuneration at rate of 4 guineas per week, with board, lodging, and washing.

SHEFFIELD CHILDREN'S HOSPITAL (EAST-END BRANCH).—House Surgeon. Salary £70 per annum, with board, lodging, and washing.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Physician, unmarried. Salary £50 per annum, with board and lodging.

UNIVERSITY COLLEGE, London.—Assistant Dental Surgeon.

WESTERN GENERAL DISPENSARY, Marylebone-road, N.W.—Honorary Surgeon.

Births, Marriages, and Deaths.

BIRTHS.

BENNETT.—On May 9th, at Staverton, Vancouver-road, Forest Hill, S.E., the wife of Colin E. Bennett, M.R.C.S., L.R.C.P. Lond., of a son.

MCNEILL.—On May 13th, at Montague House, Bridlington, the wife of Duncan McNeill, M.B., of a daughter.

STRACEY.—On April 23rd, at Sutton Bonnington, Loughborough, the wife of Bernard Stracey, M.B., of a daughter.

DEATHS.

APPLETON.—On May 11th, at The Lizard, Cornwall, George Appleton, M.R.C.S.

GOULDER.—On May 9th, at Unthanks-road, Norwich, Frank Samuel Goulder, M.R.C.S., L.R.C.P. Lond., aged 50 years.

PEARSE.—On May 14th, Robert Edmund Pearse, I.M.S. (retired), aged 69 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

QUACKS AND ABORTION.

THE articles upon Quacks and Abortion which have appeared from time to time in our columns have had the effect of bringing about the disappearance of advertisements dealing with abortifacients from the pages of the better known and widely read newspapers. But in not a few journals we still find advertisements of a bad character. Some of these now lie before us in the advertisement columns of a paper called *Brighton and Hove Society* of March 24th. For instance—

BOUTALL'S LADIES' PINK REGULATORS
For Ailments Peculiar to Women.
A SAFE, CERTAIN AND SPEEDY REMEDY
FOR ALL OBSTRUCTIONS AND IRREGULARITIES.
Price 2/9 and 4/6. Extra strong, 10/- and 20/- per Box.

And another—

BOUTALL'S
STEEL, PENNYROYAL, and BITTER APPLE PILLS.
A Medicinal Compound expressly adapted for Females.
Price 1/1½, 2/9 and 4/6 per Box.

And again—

BOUTALL'S
LADIES' INFALLIBLE QUININE CONES,
2/6, 4/6, 10/- and 21/- per Box. Post free.

57, MARCHMONT ST., LONDON, W.C.
MENTION THIS PAPER.

We have already mentioned *Brighton and Hove Society* and we would point out to the editor and to the proprietor that Mr. Justice Darling not so very long ago expressed a forcible opinion as to the liability of those publishing such advertisements in newspapers.

Besides Boutall's advertisements we note those of Dr. Davis's Pills and Towle's Pennyroyal and Steel Pills. Although quinine cones are not used as abortifacients they are not preparations which any society, even *Brighton and Hove Society*, should use, and we may say the same of Damiana and Coca Rejuvenators which Boutall also supplies. As to the abortion preparations, it is obvious that the editor and the proprietor of the journal in question must either believe the advertisements concerning them to be true or not true. If the former, they are aiding and abetting a crime; if the latter, they are helping to obtain money under false pretences, which is also a crime. Now that this fact has been pointed out to them we have no doubt that they will see that such advertisements do not occur in their journal again.

MEDICAL CERTIFICATES FOR SCHOOL ATTENDANCE.

To the Editors of THE LANCET.

SIRS,—Is a medical man entitled to charge a fee for giving a medical certificate for non-attendance at school: (1) when professional services are being given as Poor-law medical officer; (2) when as medical officer to a children's club; (3) when as paid medical officer to a dispensary? In the case of private patients there is no doubt the medical man is entitled to a fee. What should the fee be?

I am, Sirs, yours faithfully,
J. P., M.D.

*** We do not think that questions such as the above have ever been legally decided, and the answer may in individual cases be expressed or implied in the contract under which the medical man attends the case. Subject to this we should say, however, that the answer to questions 1 and 2 is in the negative. As regards question 3, we think that a medical man in such a position would have no right to charge a fee unless there was some definite clause in the rules of the dispensary. In the matter of private patients again no definite rule can be given. We think that a fair fee to charge would be that of half the fee for an ordinary visit or consultation. For example, supposing that the ordinary fee is 5*s.*, on being summoned to the child the medical man, if he gave a certificate as the result of his examination of the child would charge a fee of 7*s.* 6*d.*, the additional 2*s.* 6*d.* representing the fee for the certificate.—ED. L.

IMPROVEMENTS IN ROME.

Mr. Morgan, the British Consul, in his report for the year 1905, just received at the Foreign Office, observes that people who return to Rome after an absence of a decade or so can scarcely recognise the old city under its modern garb which, howsoever adversely it may affect its archæological interest, cannot but impress the visitor. Its population in the comparatively brief period of 20 years has risen from 345,036 to over 500,000; the extensive lands around Rome have given way to suburban quarters which, although unsightly, give shelter to thousands of newcomers from all parts of Italy, who contribute their share of individual labour towards the economic development of the city.

A British company is now going to give effect to a plan whereby the inhabitants of Rome will be provided with a summer resort placed in the immediate neighbourhood of the capital. The site chosen for the new summer town is called "Pratone," a small plain or table land, surrounded by shady woods of chestnuts, acacias, and oaks. The "Pratone" is 3210 feet above the sea level, and general local conditions are reported as being favourable for the carrying out of the object in view—short distance from Rome (21 miles as the crow flies), clear, bracing mountain air, the temperature in summer rarely exceeding 70° F., and cool, pure water. The company intends to run electric carriages between Rome and the "Pratone," which distance it estimates will be covered in an hour. The ascent to the "Pratone" will be effected by means of a series of steep inclines. The electric energy will be derived from the river Aniene at Tivoli. A large area on the top of the "Pratone" has been secured for the erection of a hotel and restaurant, as well as for a clubhouse, theatre, &c. The remaining land will be sold to private individuals who may wish to build summer residences thereon. In the neighbourhood of the "Pratone" there exists a spring of mineral water, most beneficial in cases of renal disorders. An electric tramway line connecting Rome with the surrounding villages has been opened to traffic. The advantages accruing to the population of the capital will be considerable, inasmuch as it is proposed to build houses for the less-favoured classes in the districts near Rome served by the projected line and thus to enable them to live out of the city where house rents have of late years increased very much owing to the dearth of apartments consequent upon the demolition ordered by the municipal authorities and the increase of population. The strenuous efforts during late years on the part of the Italian Red Cross Society to stamp out malaria in the Roman Campagna have proved most successful. The first attempt was made in 1900 when the returns showed that not less than 31 per cent. of the inhabitants of the "Agro Romano" had been fever-stricken. In 1901 the figure was returned at 26, 20 in 1902, 11 in 1903, 10 in 1904, and 5·1 during last year. Consequently there has been in five years a decrease of about five-sixths. These results were obtained by strict sanitary measures—use of wire nets so as to prevent the access of mosquitoes to cottages and free distribution of quinine among the peasantry. During the summer months a number of medical men belonging to the Red Cross Society take up their posts in the malarial districts in order to administer the necessary antidote as well as to show the people how to protect themselves from infection. The expenditure required for the effective operation of the organisation is partly paid out of the King's privy purse and partly by the provincial and municipal authorities.

THE MEDICAL TERMS OF THE EPISTLE TO THE HEBREWS.

To the Editors of THE LANCET.

SIRS,—The following quotation from Professor Schmiedel may be of use to your correspondent "M.D.," who writes in THE LANCET of May 5th, p. 1292: "'A medical language' was discovered in the Third Gospel and in Acts (so Hobart, 1882) and also in Hebrews (so Franz Delitzsch in his Commentary, 1857 (ET, 1868–70), condensed in the introduction to the second edition of Meyer-Lünemann)." With regard to what you say about the tradition coming from Clement of Alexandria I do not think that modern critics lay much stress upon its value. I believe it is more commonly held that the Third Gospel and Acts are from one pen (unknown), Hebrews from another (also unknown). That the writer of the former was the physician of Colossians, iv. 14, is unlikely (see Jülicher's "Introduction," Section 32), while for the latter a great number of names have been conjectured, two recent surmises being Apollos and Aquila and Priscilla.

I am, Sirs, yours faithfully,
M.B.

MOTOR CARS FOR MEDICAL MEN.

To the Editors of THE LANCET.

SIRS,—In answer to $Fe_2O_3(H_2O)_3$ I have driven a 4 cy. "Sunbeam," 1905 pattern, for the last 17 months. My expenses for upkeep without servant's wages or stable rent for the 12 months ending Dec. 31st, 1905, came to £155 12*s.* 8*d.* Incidentally I should advise $Fe_2O_3(H_2O)_3$ to think twice before fitting 810 × 90 tyres on a car such as he describes as he would find 815 × 105 tyres a big save in the end.

I am, Sirs, yours faithfully,
May 11th, 1906. "234."

**** We may add that our correspondent writes from a very hilly part of the country.—ED. L.

Justitia.—Bonds with assistants are not now so usual. A signed agreement setting forth the terms of engagement is all that is necessary, and a clause in this agreement might stipulate that the assistant should not, within ten years of termination of his agreement, practise within a limit of ten miles in the country, or one to three miles in a large town. Such a covenant has been upheld as reasonable in the courts of law.

Mr. John Hutton.—The triple wick candle ophthalmic lamp which was described in THE LANCET of Feb. 27th, 1904, p. 586, is made by Mr. Hawksley, 357, Oxford-street, London, W.

R. E. A. is referred to his medical adviser for the treatment of a trivial and common complaint.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (21st).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (3 P.M.).

TUESDAY (22nd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (2 P.M., Ophthalmic, 2.15 P.M.).

WEDNESDAY (23rd).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9.30 A.M., Dental, 2 P.M.).

THURSDAY (24th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (2.30 P.M.).

FRIDAY (25th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), St. Mark's (2.30 P.M.).

SATURDAY (26th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9.30 A.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

MONDAY (21st).—MEDICAL SOCIETY OF LONDON (11, Chandos-street, Cavendish-square, W.).—8.30 P.M. Annual Conversazione. Reception by the President. 9 P.M. Oration:—Prof. Kocher (Berne): Some Contributions to the Pathology of the Thyroid Gland.

TUESDAY (22nd).—ROYAL MEDICAL AND CHIRURGICAL SOCIETY (20, Hanover-square, W.).—8.30 P.M. Paper:—Mr. B. G. A. Moynihan: Report upon 252 Operations for Non-malignant Diseases of the Stomach.—Dr. H. French and Dr. H. T. Hicks: Mitral Stenosis and Pregnancy. (Epidiascope demonstration.)

FRIDAY (25th).—CLINICAL SOCIETY OF LONDON (20, Hanover-square, W.).—8.30 P.M. Papers:—Dr. F. Hawkins: Case of Thrombosis of the Abdominal Aorta.—Dr. C. E. Box: A Series of Cases in which Pulmonary Embolism was Due to Displacement of Pulmonary Thrombosis.—Dr. F. P. Weber: Acute Dilatation (Atony) of the Stomach and Intestines connected with Pneumonia and Pericarditis.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (21st).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies street, W.C.).—4 P.M. Dr. A. Whitfield: Clinique. (Skin). 5.15 P.M. Lecture:—Dr. R. Saundby (Birmingham): The Dietetic Treatment of Dyspepsia.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M. Dr. Low: Tropical Medicine. Medical and Surgical Wards. 11 A.M. Operations in Out-patient Department. 12 noon. Dr. Low: Pathological Demonstration. Mr. Baldwin: Practical Surgery. 2 P.M. Medical and Surgical Clinics. 2.30 P.M. Operations. 3 P.M. Mr. Paget: Demonstration in Surgical Wards. 5 P.M. Dr. Saunders: The Examination and Treatment of Severe Cases of Gastric Ulcer.

CHARING CROSS HOSPITAL.—4 P.M. Dr. Waggett: Demonstration (Aural). (Post-Graduate Course.)

TUESDAY (22nd).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. W. Harris: Clinique. (Medical.) 5.15 P.M. Lecture:—Dr. T. G. Stevens: The Necessity for, and Nature of, the Treatment of Backward Displacement of the Uterus.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M. Medical and Surgical Wards. 11 A.M. Operations in Out-patient Department. 2 P.M. Medical and Surgical Clinics. 2.30 P.M. Operations. Dr. Abraham: Skin Diseases. Dr. Ball: Throat, Nose, and Ear Department. 5 P.M. Dr. Low: Tropical Medicine.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Queen-square, Bloomsbury, W.C.).—3.30 P.M. Clinical Lecture:—Dr. J. Taylor: Paraplegia.

NORTH-EAST LONDON POST GRADUATE COLLEGE (Tottenham Hospital, N.).—4.30 P.M. Lecture:—Dr. D. Forsyth: Diagnosis of Abdominal Tumours.

ROYAL INSTITUTE OF PUBLIC HEALTH (37, Russell-square, W.C.).—5 P.M. Mr. W. R. Smith: The Law of Public Health. (Lecture V.)

ROYAL INSTITUTION OF GREAT BRITAIN (Albemarle-street, W.).—5 P.M. Prof. W. Stirling: Glands and their Products. (Lecture III.)

WEDNESDAY (23rd).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. J. Berry: Clinique. (Surgical). 5.15 P.M. Lecture:—Dr. H. Mackenzie: The Treatment of Acute Pneumonia.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M. Medical and Surgical Wards. Dr. Ball: Throat, Nose, and Ear Operations. 11 A.M. Operations in Out-patient Department. 12 noon. Dr. Russell: Medicine. 2 P.M. Medical and Surgical Clinics. Dr. Beddard: Demonstration in Medical Wards. 2.30 P.M. Operations. 5 P.M. Dr. R. H. Cole: Puerperal Insanity.

CENTRAL LONDON THROAT AND EAR HOSPITAL (Gray's Inn-road, W.C.).—5 P.M. Demonstration:—Dr. Abercrombie: Nose.

ROYAL INSTITUTE OF PUBLIC HEALTH (37, Russell-square, W.C.).—5 P.M. Dr. C. Prausnitz (Breslau): The Bacteriology of Water, Milk, and Tuberculosis. (Lecture III.)

THURSDAY (24th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. Hutchinson: Clinique. (Surgical). 5.15 P.M. Lecture:—Dr. P. Stewart: Trophic Nervous Diseases.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M. Medical and Surgical Wards. Dr. Low: Tropical Medicine. 11 A.M. Operations in Out-patient Department. 12 noon. Mr. Baldwin: Practical Surgery. 2 P.M. Medical and Surgical Clinics. 2.30 P.M. Operations. Mr. Dunn: Ophthalmology. 3 P.M. Dr. Hood: Demonstration in Medical Wards. 5 P.M. Mr. Keetley: Unreduced Dislocation of Shoulder and Elbow.

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Tottenham Hospital, N.).—4.30 P.M. Lecture:—Dr. A. E. Giles: Obstructed Labour.

CHARING CROSS HOSPITAL.—4 P.M. Mr. Gibbs: Demonstration (Surgical). (Post-Graduate Course.)

HOSPITAL FOR SICK CHILDREN (Gt. Ormond-street, W.C.).—4 P.M. Lecture:—Mr. Parsons: Phlyctenular Conjunctivitis and its Complications.

ROYAL INSTITUTION OF GREAT BRITAIN (Albemarle-street, W.).—5 P.M. Prof. W. J. Sollas: Man and the Glacial Period. (Lecture I.)

FRIDAY (25th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. StClair Thompson: Clinique. (Throat).

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M. Medical and Surgical Wards. 11 A.M. Operations in Out-patient Department. 2 P.M. Medical and Surgical Clinics. 2.30 P.M. Operations. 5 P.M. Dr. Abrahams: Cases of Skin Disease.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Queen-square, Bloomsbury, W.C.).—3.30 P.M. Clinical Lecture:—Dr. J. Taylor: Paraplegia.

ROYAL INSTITUTION OF GREAT BRITAIN (Albemarle street, W.).—9 P.M. Mr. L. Hill: Compressed Air and its Physiological Effects.

SATURDAY (26th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M. Medical and Surgical Wards. Dr. Ball: Throat, Nose, and Ear Operations. 11 A.M. Operations in Out-patient Department. 12 noon. Dr. Russell: Medicine. 2 P.M. Medical and Surgical Clinics.

ROYAL INSTITUTION OF GREAT BRITAIN (Albemarle-street, W.).—3 P.M. Prof. Sir James Dewar: The Old and the New Chemistry. (Lecture II.)

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, London, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will insure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect.

The rates of subscriptions, post free, either from THE LANCET Offices or from Agents, are:—

FOR THE UNITED KINGDOM.		TO THE COLONIES AND ABROAD.	
One Year	£1 12 6	One Year	£1 14 8
Six Months	0 16 3	Six Months	0 17 4
Three Months	0 8 2	Three Months	0 8 8

Subscriptions (which may commence at any time) are payable in advance. Cheques and Post Office Orders (crossed "London and Westminster Bank, Westminster Branch") should be made payable to the Manager, Mr. CHARLES GOOD, THE LANCET Offices, 423, Strand, London, W.C.

SUBSCRIBERS ABROAD ARE PARTICULARLY REQUESTED TO NOTE THE RATES OF SUBSCRIPTIONS GIVEN ABOVE. It has come to the knowledge of the Manager that in some cases higher rates are being charged, on the plea that the heavy weight of THE LANCET necessitates additional postage above the ordinary rate allowed for in the terms of subscriptions. Any demand for increased rates, on this or on any other ground, should be resisted. The Proprietors of THE LANCET have for many years paid, and continue to pay, the whole of the heavy cost of postage on overweight foreign issues; and Agents are authorised to collect, and generally do so collect, from the Proprietors the cost of such extra postage.

The Manager will be pleased to forward copies direct from the Offices to places abroad at the above rates, whatever be the weight of any of the copies so supplied. Address—THE MANAGER, THE LANCET OFFICES, 423, STRAND, LONDON, ENGLAND.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, May 17th, 1906.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radiation in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
May 11	29·74	S.W.	...	88	58	47	46	51	Cloudy
,, 12	29·79	S.	...	112	71	50	55	59	Fine
,, 13	30·04	S.E.	...	116	74	52	54	60	Fine
,, 14	29·92	N.E.	...	116	68	49	52	58	Fine
,, 15	29·82	N.E.	...	106	61	45	44	48	Cloudy
,, 16	29·60	W.	...	107	56	46	46	51	Cloudy
,, 17	29·49	N.E.	0·13	66	47	43	41	45	Cloudy

During the week marked copies of the following newspapers have been received:—*Liverpool Daily Post, Lancashire Post, Leicester Mercury, Reynolds' Newspaper, Yorkshire Observer, Leicester Advertiser, Portsmouth Independent, Newcastle Chronicle, Cork Constitution, Cardiff Mail, Bury Times, Dublin Mail, Manchester Guardian, Glasgow Herald, Leeds and Yorkshire Post, City Press, Surrey Advertiser, Manchester Chronicle, Birkenhead News,* &c.

Communications, Letters, &c., have been received from—

A.—*American Journal of Surgery*, New York, Manager of; Dr. Edwin Ash, Lond.; *American Journal of Clinical Medicine*, Chicago; Mr B. C. Andrews, Lond.

B.—Dr. Adolph Bronner, Bradford; Dr. Byrom Bramwell, Edinburgh; Messrs. Burroughs Wellcome and Co., Lond.; British Dental Association, Lond.; Staff-Surgeon R. F. Bate, R.N., Yokohama; Messrs. John Bale Sons and Danielsson, Lond.; Mr. J. B. Bate, Clifton; Bayer Co., Lond.; Dr. A. P. Beddard, Lond.; *British Gynæcological Journal*, Sub-Editor of.

C.—Mr. Treacher Collins, Lond.; Camberwell Guardians, Clerk to the; County Lunatic Asylum, Hatton, Registrar of; Children's Country Holidays Fund, Lond., Secretary of; Mr. A. G. Coullie, Lond.; Mr. P. Clark, Ottawa; Messrs. J. W. Cooke and Co., Lond.; Messrs. T. Christy and Co., Lond.; Cornwall County Asylum, Bodmin, Clerk to the; Messrs. Callard and Co., Lond.; Clerical, Medical, and General Life Assurance Society, Lond.; Cornwall County Council Sanitary Committee, Truro, Chairman of.

D.—Mr. Alexander Duke, Lond.; Dr. T. M. Dolan, Halifax; Dr. Bertrand Dawson, Lond.

E.—Miss Erwin, Lond.

F.—Dr. Theodore Fisher, Sidcup; Mr. G. Fock, Leipsic; Foreign Press Association, New York, Manager of; Mr. N. Hay Forbes, Tunbridge Wells.

G.—Mr. A. D. Griffith, Lond.; Guardians of St. Mary's, Islington, Clerk to the.

H.—Mr. E. F. Heap, St. Asaph; Mr. J. Howard Jones, Worthen; Hospital for Sick Children, Lond., Secretary of; Holborn Surgical Instrument Co., Lond.; Captain T. Hunter, I.M.S., Rat Bareli; Hull Royal Infirmary, Secretary of; Mr. W. S. Handley, Lond.; Mr. J. Hutchinson, Lond.; Dr. W. B. Heilborn, Bradford; Dr. C. O. Hawthorne, Lond.; Mrs. Lucy Hoare, Henley-on-Thames; Brigade-Surgeon E. Hopkins (retired), Llandilo.

I.—Islington Dispensary, Hon. Secretary of.

J.—Messrs. R. Jackson and Co., Lond.; J. M. I.; Justitia.

K.—Mr. Percy E. Kingsford, Dover; King's College Hospital Removal Fund, Lond., Secretary of; Messrs. P. S. King and Son, Lond.; Messrs. R. A. Knight and Co., Lond.

L.—Mr. R. K. Lewis, Lond.; Dr. F. Seymour Lloyd, Luton; Mr. T. Leahy-Lynch, Lond.; Lennox Chemical Co., Cleveland, U.S.A.; Dr. F. Langmead, Lond.; Mr. Cecil H. Leaf, Lond.; Dr. G. Lyon, Milford; Livingstone College, Principal of.

M.—Mr. John D. Malcolm, Lond.; Dr. F. C. McCombie, Tinsukia, Upper Assam; Manchester Pathological Society, Editor of; Messrs. Mertens and Co., Lond.; Mr. A. J. McCallum, Kendal; Maltine Manufacturing Co., Lond.; McDoddies, Ltd., Lond.; Mr. Prosper H. Marsden, Liverpool; Mr. John Moxon, Newport; Dr. L. P. Maitland, Lond.

N.—Mr. J. C. Needes, Lond.; Mr. H. Needes, Lond.; Dr. J. B. Nias, Lond.; Mr. R. Sherwood Norris, Lond.

P.—Mr. Charles Porter, Liverpool; Mr. W. H. Payne, Lond.; C. H. Phillips Chemical Co., Lond.; Mr. Y. J. Pentland, Edinburgh; Messrs. Peacock and Hadley, Lond.; Paddington Guardians, Lond., Clerk to.

Q.—Queensland, Department of Public Health, Brisbane, Secretary of; Queen Charlotte's Lying-in Hospital, Lond., Medical Committee of.

R.—Dr. R. R. Rentoul, Liverpool; Mr. W. Roughton, New Barnet; Royal Devon and Exeter Hospital, Secretary of; Messrs. Richardson and Co., Lond.; Royal Botanic Society of London, Secretary of; Dr. J. W. Rob, Weybridge; Messrs. Robinson and Co., Newcastle-on-Tyne; Mr. H. Powell Rees, Lond.; Radcliffe Infirmary, Oxford; Mr. J. Robertson, Leeds; Royal Sanitary Institute, Lond., Secretary of; Mr. R. Fred Reynolds, Leeds; Royal Meteorological Society, Lond., Assistant Secretary of.

S.—Dr. H. Batty Shaw, Lond.; Mr. Sydney Stephenson, Lond.; Society for the Study of Disease in Children, Lond., Hon. Secretary of; Mr. H. R. Stuart, Lond.; South-West London Medical Society, Joint Hon. Secretary of; Mr. C. A. Saunders, Los Angeles, California; Sanatorium Committee, Ealing, Hon. Secretary of; Mr. F. W. Seymour, Oxford; South Arcot, India, District Medical Officer of; Dr. P. Blaikie Smith, San Remo; Dr. F. W. Saunders, Lond.; Scholastic, Clerical, &c., Association, Lond.; Messrs. Spiers and Pond, Lond.; Mr. J. Stirton, Edinburgh; S. M., Bristol; Dr. A. Rendle Short, Bristol; Dr. G. E. Shuttleworth, Richmond Hill; Society for Relief of Widows and Orphans of Medical Men, Lond., Secretary of; Dr. Charles Slater, Lond.

T.—Miss E. M. Tyson, New Quay; Dr. A. Turner, Plympton; T. C.; Messrs. L. W. Thompson and Co., Lond.

W.—Mr. H. J. Walker, Brighton; Dr. Charles J. Whalen, Chicago; Dr. Richard Wood, Llanbedr; Mr. H. Secker Walker, Leeds; Witch Dust Extractor Co., Birmingham, Manager of; Messrs. Willows, Francis, and Co., Lond.; Warwick County Asylum, Hatton, Clerk to the; Mr. R. Wilkinson, Lond.; West Kent Medico-Chirurgical Society, Hon. Secretary of; Messrs. Wheatley, Dyson, and Son, Huddersfield; Messrs. H. Wilson and Son, Lond.; Messrs. A. J. Wilson and Co., Lond.; Mr. P. d'Erf Wheeler, Shortlands.

Letters, each with enclosure, are also acknowledged from—

A.—Mr. P. H. Adams, Oxford; Dr. F. S. Arnold, Ipsden; A. F.; A. T. G.; Agricultural Organisation Society, Secretary of; A. B., Portland-place; Dr. T. R. Atkinson, Chadwell Heath; Messrs. Ash, Sons, and Co., Lond.; A. J. R.

B.—Mr. J. B. L. Bates, Lond.; Dr. T. W. Beazeley, Little Bromwich; Miss Beale, Parkstone; Miss Bretherton, Lond.; Messrs. Brandt and Son, Amsterdam; Mr. C. S. Bowker, Pontnewydd; Bristol General Hospital, Secretary of; Bethel Hospital, Norwich; Mr. H. Brice, Exeter; Dr. A. G. Brydon, Marton, New Zealand; Dr. F. Bryan, Rushden; Birmingham University, Secretary of; Mr. W. H. Brown, Crewe; Barnwood House, Gloucester, Medical Superintendent of; *British and Colonial Druggist*, Lond., Manager of; Messrs. Buchner, Schacht, and Co., Lond.; Mr. J. T. Bailey, Paignton; Mr. C. A. G., Browne, Lond.

C.—Mr. J. J. Crowley, Cork; Mr. F. W. Clarke, Chorlton-cum-Hardy; Dr. Cotton, Edrom; *Chester Courant*, Manager of; Messrs. Crossley and Co., Lond.; Messrs. Samson Clark and Co., Lond.; Dr. C. Chisholm, Bingley; Dr. E. Collins, Sawbridgeworth; Mr. D. Crichton, Auchterhouse; Messrs. Condy and Mitchell, Lond.; Clayton Hospital, Wakefield, Secretary of; Dr. C. U. Collins, Peoria, U.S.A.; Dr. J. Campbell, Annfield Plain.

D.—Dr. J. Dalebrook, Seville; Dalrymple House, Rickmansworth Medical Superintendent of; Devon County Asylum, Exminster, Clerk to the.

E.—Messrs. Elliott, Son, and Boyton, Lond.; E. D.

F.—Fellows Manufacturing Co., New York; Flower House, Catford, Medical Superintendent of; F. C. N.

G.—Mr. W. Grisewood, Liverpool; Mr. H. H. Gunnell, Peterchurch; Messrs. R. W. Greeff and Co., Lond.; G. R. G.; Messrs. Gould and Portmans, Lond.

H.—Mr. J. Hatton, Weymouth; Dr. A. R. Henchley, Canterbury; Dr. W. C. Hayward, Port Said; Messrs. Abel Heywood and Son, Manchester; R. D.; H. C. P.; Messrs. E. and H. Horn, Lond.; Messrs. Haasenstein and Vogler, Geneva; H. C. S.

I.—International Plasmon, Lond.; I. C.

J.—Dr. G. Jefferson, Cornholme; J. F. W.; Miss Jackson, Gateforth; J. H.; J. R.; Dr. P. Jones, Prudhoe.

K.—Miss K.

L.—Mr. A. Lockie, Lond.; L. P.; Leeds Hospital for Women and Children, Secretary of; Locum, Ipswich; Messrs. W. & Le Lacheur and Sons, Lond.; Locum, Thornton Heath; Locum, Lond.; Locum, Brixton; Mrs. Langdon, Preston.

M.—Mr. J. M. Mangan, Ennis; Dr. G. Metcalfe, Skelmersdale; Messrs. J. Menzies and Co., Edinburgh; M. B. A.; Dr. G. Myles, Limerick; Dr. J. McDonald, Belford.

N.—Messrs. Neale and Wilkinson, Lond.; National Provident Institution, Lond., Secretary of.

O.—Mr. C. A. P. Osburne, Old Catton.

P.—Dr. F. S. Palmer, Lond.; Mr. R. F. Pritchard, Clifton; Peckham House, Lond., Medical Superintendent of; Perth District Asylum, Medical Superintendent of; Portsmouth Borough Asylum, Clerk of; P. I. F.

R.—Mr. L. Rodhouse, Leicester; Lady Russell Reynolds, Lond.; Belgate Corporation, Treasurer to the; Royal Southern Hospital, Liverpool, Treasurer of; R. W. J.; Mr. G. A. Roberts, Tunbridge Wells.

S.—Mr. D. Smith, Eastbourne; Mr. G. C. Stamper, Angle; Messrs. W. H. Smith and Son, Manchester; Messrs. T. G. Scott and Son, Lond.; Smedley's Hydropathic Establishment, Matlock; Mrs. Skinner, Winchelsea; Dr. R. Stewart, East Grinstead; Dr. R. D. Shiels, Dunbar; Southport Infirmary, Secretary of; Mr. H. J. Satchwell, Sutterton; Somerset and Bath Asylum, Wells, Clerk of.

T.—Mr. J. Thin, Edinburgh; Mr. J. W. Thompson, Liverpool; Dr. M. J. Tulk, Poole; T. C.; Mr. J. B. Thomas, Sheffield; Mr. John Taylor, Lond.

V.—Mr. W. Van Praagh, Lond.; V. E. T. S.

W.—Mr. H. Wallis, Babbacombe; Wyleya, Ltd., Coventry; W. B.; Mrs. Winsloe Phillipps, Torquay; W. J. S.; Mr. E. B. Waggett, Lond.; Mr. S. Wand, Leicester; Mr. B. Wheeler, Manchester; West Riding County Council, Wakefield, Treasurer of; Messrs. J. P. and C. B. Wagstaff, Hornchurch; W. H. V.; W. L., Tunbridge Wells.

EVERY FRIDAY.

THE LANCET.

PRICE SEVENPENCE.

SUBSCRIPTION, POST FREE.

FOR THE UNITED KINGDOM.		TO THE COLONIES AND ABROAD.	
One Year	£1 12 6	One Year	£1 14 8
Six Months	0 16 3	Six Months	0 17 4
Three Months	0 8 2	Three Months	0 8 8

Subscriptions (which may commence at any time) are payable in advance.

ADVERTISING.

Books and Publications	Seven Lines and under	£0 5 0
Official and General Announcements	Ditto	0 5 0
Trade and Miscellaneous Advertisements and Situations Vacant	Ditto	0 4 6
	Every additional Line	0 0 6

Situations wanted: First 30 words, 2s. 6d.; per additional 8 words, 6d.
Quarter Page, £1 10s. Half a Page, £2 15s. An Entire Page, £5 5s.

An original and novel feature of "THE LANCET General Advertiser" is a Special Index to Advertisements on pages 2 and 4, which not only affords a ready means of finding any notice but is in itself an *additional* advertisement.

Answers are now received at this Office, by special arrangement, to advertisements appearing in THE LANCET.

The Manager cannot hold himself responsible for the return of testimonials, &c., sent to the Office in reply to Advertisements; copies only should be forwarded.

Advertisements (to ensure insertion the same week) should be delivered at the Office not later than Wednesday, accompanied by a remittance.

Cheques and Post Office Orders (crossed "London and Westminster Bank, Westminster Branch") should be made payable to the Manager, Mr. CHARLES GOOD, THE LANCET Office, 423, Strand, London, to whom all letters relating to Advertisements or Subscriptions should be addressed.

THE LANCET can be obtained at all Messrs. W. H. Smith and Son's and other Railway Bookstalls throughout the United Kingdom. Advertisements are also received by them and all other Advertising Agents.

Agent for the Advertisement Department in France—J. ASTIER, 31, Rue Bapts, Asnieres, Paris.